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Interview by Kevin George, President of Articulate Design [www.articulate-sf.com](http://www.articulate-sf.com)  
On location at Plug In America, Fogerty Winery, August 9, 2009

*Kevin George:* Please Introduce yourself.

*Jay Friedland:* Sure. I'm Jay Friedland and I'm the legislative director for Plug In America. And I've been with Plug In America now for about a little more than four years. And I've had an electric car for – I think I may have almost the oldest electric car, oldest production electric car here which is an eight-year-old RAV4 EV.

*Kevin George:* And what does it mean to be a legislative –

*Jay Friedland:* Legislative director. So what I do is I work with Congress, with the administration, and with primarily the State of California to try and make sure that from a policy standpoint we lay in the right kind of laws and public policy so that we can get more electric cars and more plug-in hybrids on the road and into consumers' hands.

So President Obama when he was a candidate basically said, "I want to put a million plug-in vehicles on the road by 2015." And as part of getting to that goal we along with a number of other – everyone from the automakers to other non-governmental agencies, other nonprofits, all worked with Congress and got a very specific set of incentives into the stimulus package.

So if you buy a fully electric vehicle, plug-in vehicle, you can get up to a \$7,500 tax credit. So right now you get \$3,000 to \$3,500 to \$4,500 for Cash for Clunkers but if you buy an electric vehicle you can get \$7,500. So now the big thing, so we've put in the if you buy an electric vehicle you can get \$7,500. So now the big thing, so we've put in those consumer incentives and that's gigantic.

But now the big thing we're trying to do is to make sure that the vehicles get built and so we're doing a lot of outreach and a lot of work to make sure the cars get on the road and obviously the first cars are already out there, as you can see from walking around today.

But our goal is really to get cars into showrooms so the consumers can walk in and make a choice to buy them and then have the government incentives and policy incentives that make that an easier job.

- Kevin George:* And okay. So the government incentives I understand. What about the issue of getting them built? What's the issue there?
- Jay Friedland:* Well, see there's a bunch of things. So last week the department of energy awarded \$2.4 billion in grants and basically that program was set up primarily, about \$2 billion of it went to building manufacturing facilities for batteries in the US.
- What that will do is go a long way to getting – right now the batteries work. Everybody always goes, “Well, do the batteries work?” The batteries work but we're not building them here. And so the goal from a federal policy standpoint is to get 'em built and manufactured here.
- And then there's a lot of money in there also for demonstration projects and public education and things like that.
- Kevin George:* And where are they being built now? The batteries.
- Jay Friedland:* The batteries are coming mostly from Asia. A little bit from Europe but mostly from Asia. So it's like Korea, China, Japan.
- Kevin George:* And what year might we see batteries built in the US?
- Jay Friedland:* I think we'll see batteries built in the US. I mean the pilot programs are already up and running so I think probably end of 2010, early 2011 we will see batteries built in the US.
- Kevin George:* Okay.
- Jay Friedland:* And cars too.
- Kevin George:* Yeah. The manufacturers. Let's talk about which manufacturers are actually building electric vehicles today.
- Jay Friedland:* So today what we have is you have a number of small manufacturers that are building the vehicles. Like Tesla, you can see Aptera here. They're actually gonna begin shipping late this year or early next year. And then all of the major automakers have announced that they are doing a plug-in hybrid which is again the next step on hybrids.
- It allows you to instead of making electricity with gasoline you run electricity off your house and that's equivalent at getting gasoline at 75 cents a gallon so it's a gigantic win. You really want to plug

in. And you nominally get the equivalent of 100 miles to the gallon.

So going back to your original question though, in terms of vehicles, all the major companies, General Motors, Ford, Chrysler, Volkswagen, Hyundai, BMW, I'm sure I'm gonna leave somebody out here, Nissan. Nissan is probably I would say in the lead in some ways because I think that they will have more cars on the road by the end of next year than anyone else.

And they just made a big announcement about a week and a half ago about what their goal is and their product's called the Nissan Leaf. So we see a lot of vehicles and the great thing is this time instead of some government agency saying you have to build electric cars, they're building them because there's market demand, they see the price of fuel, and there are these government incentives.

So they're reacting to the incentives rather than – the carrot rather than the stick.

*Kevin George:* So two on the road today. Tesla, Aptera.

*Jay Friedland:* Well, Aptera –

*Kevin George:* Right around the corner.

*Jay Friedland:* Yeah, yeah. And I'm trying to think. Well, and there's also there's a demonstration fleet from BMW, the MINIS. There's about 500 of those on the road now too.

*Kevin George:* Okay. And let's say the big automakers, they get into it like you were saying. What year are we talking about? Do you know?

*Jay Friedland:* Well, many of the automakers are committing for example, GM and Nissan are committing to next year to 2010. And then after that we're seeing again, Chrysler, Ford and some of the other ones coming in in 2011, 2012.

*Kevin George:* Okay.

*Jay Friedland:* And next week there's a big trade show called Plug In 2009 next week down in Long Beach and I'm anticipating some additional announcements.

*Kevin George:* Okay.

- Jay Friedland:* And on our website at PlugInAmerica.org we have a vehicle tracker so it lists when all the dates are because it's getting hard even, you know, I live this and it's getting hard for me to even keep track of it so we have a bunch of people that monitor all the press releases and also all the contact that we have with the automakers so we're constantly updating when they're gonna be available and what they are.
- Kevin George:* So what is the charter for Plug In America?
- Jay Friedland:* Our goal is to basically –
- Kevin George:* Say, “Plug In America.”
- Jay Friedland:* Yeah. Plug In America's goal is really to take and move transportation to clean, affordable, domestic electricity and advantages of that are everything from greenhouse gas reduction to natural security because we get off of petroleum.
- And so we really – our goal is to get electric and plug-in vehicles on the road.
- Kevin George:* And that goal, is it achieved through government liaison?
- Jay Friedland:* We actually do. The way we achieve our goal is really by – it's sort of three ways. One, we work with the automakers to make sure they're building them. We work with government to make sure that the policy fits and that there's the right incentives. And then we also work with consumers to educate. So we really do all three aspects of that.
- Kevin George:* Give me an example of working with an automaker. What kind of relationship do you have?
- Jay Friedland:* So, for example with Nissan, we did a tremendous amount of work where we're the people – I like to say that Plug In America represents the current, which is a small number, and the future consumers of plug-in vehicles which is a very, very large number.
- And so as the current people who have driven these cars for years, we have this body of knowledge and so we participated in market research and focus tests. Actually with General Motors we did that; with Nissan we did that. A bunch of our members are part of the BMW program. So.

*Kevin George:* Okay. So you started to speak of community, an area that I'm very interested in. So the current community of Plug In America is the owners.

*Jay Friedland:* Plug In America has about 25,000 supporters and of those many of those people, obviously there's only now, you know, we estimate that there's depending on how you count the number of vehicles in terms of freeway capable vehicles, there's probably about 2,000, 2,500 vehicles on the road today.

But that's growing rapidly. I mean Tesla's shipping hundreds a month. Again, BMW just shipped 500. So those are all numbers that are growing. And then there's all of the other smaller electric vehicles. Everything from electric motorcycles to what they call neighborhood electric vehicles. If you count all of those there's probably 50,000 or 60,000 vehicles on the road.

But our goal is really to expand it so that these vehicles are mainstream. And so for example everyone that bought one of those first Prius we think is an ideal candidate because they bought those Prius not just because they saved gasoline and saved money but because they wanted to make a statement.

Well, clearly the next level of statement is to get to zero out of your tailpipe or zero out of your tailpipe for the first 30 or 40 miles of your driving. And if you can do that, then we really can have a significant impact and Plug In America's constituency like I was telling you is very, very wide.

I mean it really does span what I would call national security oil hawks where they're worried about peak oil and worried about oil shocks and the like. All the way to the greenest of the green, you know, what we affectionately sometimes call the tree huggers. And so you really do get this very, very diverse coalition of people all coming together toward a single goal.

*Kevin George:* How can the general consumer get involved in Plug In America?

*Jay Friedland:* It's great. In terms of getting involved in Plug In America, a general consumer can literally come to our website. We have a bunch of resources again, tracking the vehicles, when they're gonna be available. All of our advocacy and action programs are on our website. So we encourage people to participate.

You can easily participate in terms of for example again with grass roots. What we often do from a legislative standpoint is we'll go

work members of Congress and try and craft and shape legislation but then it's our supporters who help bring it home because what happens is they send tens of thousands of letters to Congress. And it's great when I can say to Senator Maria Cantwell from Washington State, "Well you just got 700 letters from our supporters," and they'll go, "Oh, so you're watching us." We're watching this. We want to make sure this happens.

And oftentimes, well with Senator Cantwell, to give you an example. She had a bill that ended up inside the stimulus. That bill passed 80 to 16, total bipartisan support, and it was because people in every Congressional district and all across the US, all states were able to send in to their senators in that particular case and say, "Vote for this."

*Kevin George:* And Plug In America is a national –

*Jay Friedland:* We are a national organization. Absolutely. We have people in all 50 states and actually around the world. It's bigger than America but we really focused on I would almost call it the American gestalt in terms of the car, in terms of the future of the car and in terms of making that better.

*Kevin George:* Now is it my perception or is California kind of a leader in electric vehicles?

*Jay Friedland:* Because of the California Air Resources Board, and what was called the Zero Emissions Mandate, California is indeed not only a leader but a trendsetter in terms of that. But now looking forward, again all across the country there are gonna be demonstration projects with electric vehicles in the next wave that are coming out.

But I believe that California oscillates a little bit on being the leader. It depends on the will of organizations like the California Air Resources Board and we've seen both good where that mandate came into existence. We've seen bad where they've let it go and allowed the parties to be crushed. And then we've seen good where it's coming back.

So it really is one of those things that we feel we have to keep pressure on those regulators from a grass roots standpoint to make sure they do the right thing.

*Kevin George:* And where does – I just bought an electric vehicle. Where do I plug in?

*Jay Friedland:* Well, that's the great thing. It's ubiquitous. I tell people, "If you never had to go to a gas station again, if you could just pull into your driveway and plug in and you could pass the gas station all the time particularly as those prices are rising, wouldn't you want to?"

So people always ask me, "How fast, how far, how long?" in terms of electric cars. So my car can go 80 miles an hour. It can go 100 miles. And how long does it take to charge? I pull into my driveway, I open the garage door, I plug it in. It takes about 30 seconds. I wake up in the morning, it's full.

*Kevin George:* Did you drive today?

*Jay Friedland:* Yeah, I did. I drove here today in my electric car from Santa Cruz.

*Kevin George:* What kind of car do you drive?

*Jay Friedland:* I have a Toyota RAV4 EV. And I've had it for eight years and it has – I have one of the few cars in the world that I can say has gotten better over time because the grid in the last eight years has gotten dramatically cleaner so I pollute less today than I did eight years ago when I got the car.

*Kevin George:* Yeah. Let's talk about the grid. You plug in, you must think about where that electricity's coming from. So where is the electricity coming from?

*Jay Friedland:* So in the best case about 50 percent of us have solar panels. So we're making our own electricity. We don't see that necessarily as being the future of the world but once you start using an electric car you go, "I'd really love to be able to use more electricity. How can I shift this even more?"

*Kevin George:* So you have solar panels on your roof?

*Jay Friedland:* Yeah, we call it the PV EV cycle. So that you basically get photovoltaic or you get solar panels or you get your car. Some people do it in – a lot of times people get solar and they go, "How do I use more electricity? How do I use what I'm generating? Oh, electric car." Or I have an electric car and you go, "I gotta get solar because it just makes all the sense in the world."

*Kevin George:* And do you think about 50 percent of it you can power under the solar?

*Jay Friedland:* Yeah, and it depends on how big your array is and everything but no, 50 percent of the people that got electric cars either had solar or went and got solar. It's been a very, very virtuous cycle in terms of that and we actually have some great success stories on our website that talk about this. On Plug In America's website.

*Kevin George:* Now your average American, let's say they don't put solar on their roof, where is that electricity coming from?

*Jay Friedland:* So it depends. In California the grid's very, very clean so it's coming from a mix of different things but there's actually very, very little coal in California. This is the big question. Are we just taking and having a longer tail?

Well, even in the worst situation, which would be like West Virginia or Kentucky, you're still about twice as good from a greenhouse gas emissions standpoint using an electric car. But, again, each and every year that gets better. And if you start to look at things like for example sulfur dioxide from coal plants is totally capped so you're not putting any sulfur dioxide into the earth.

So you can start looking at reductions at all levels and we're definitely getting rid of, you know, coal plants are going the other way and we're starting to see more and more and more renewables on the grid. So again, the cars get better every year.

*Kevin George:* So in California we've got a very clean grid.

*Jay Friedland:* Very, very clean grid.

*Kevin George:* And in West Virginia for example it's a very coal-based electric source?

*Jay Friedland:* Yeah. West Virginia, Kentucky, areas where they are coal producing. The other thing about coal is there's a lot of transportation cost in coal so you don't want to move it very far so yeah. So if you're generating your electricity with renewables or with natural gas, there are a whole variety of different areas and we believe that you can just keep putting more and more renewables and actually for example, wind which is very irregular, there's this constant called vehicle to grid which mean you can have a five-year extra blow so the batteries in the cars can actually store the energy that wind is generating at weird times and give it back to the grid later. So that's the future that we're looking at. That's not today. That's in the future.

*Kevin George:* What's kind of the current state of affairs if EVs start rolling out?

*Jay Friedland:* Okay. So if EVs start rolling out, the first thing is that already you can create the right kind of policy where you'd have – like I charge my car at night. Even though I generate solar during the day there's phenomenal rates to charge at night and that's using excess capacity.

We can put 4,000,000 cars on the road without having to build a single power plant. So it's a really, really straightforward thing. By just using the off peak electricity and creating incentives. Again, I pay a nickel a kilowatt-hour so it's very, very cost effective for me to take and charge off peak hours.

But long term, as I said the grid is getting better and better. I am not the world's expert on the grid so I'll say that right up front but I believe that we will see, particularly with a lot depends on will the kind of bill pass, what will happen. But if we can get to what's called a renewable portfolio standard where again the amount of required renewables on the grid goes up, and there is the transmission capability to move from the Saudi Arabia wind to South Dakota or California or to the Midwest, then I think that we will see a much more intelligent or smart grid and we'll see much cleaner.

It's gonna take some number of years to get there but if you look at it's slow but even if you can get very fast acceptance of electric cars, there's still a very minor impact on the grid. We can take and use all that off peak power.

*Kevin George:* And the climate change bill?

*Jay Friedland:* The climate change bill basically has been passed by the House of Representatives and the idea is they'll have a whole bunch of different both incentives and regulations that will for the first time actually regulate the amount of greenhouse gases that the US industry, consumers, etc. put into the environment.

*Kevin George:* Okay. One last question. Do you promote everything? Plug-ins, hybrids, biodiesel, natural gas, all EVs, I mean motorcycles, cycles?

*Jay Friedland:* So we promote all different kinds of vehicles whether it's, you know, there's motorcycles out there to there are people that are

building these gigantic electric trucks that they use for cargo moving. So Plug In America promotes all those but we only promote things that plug in.

So it can be a plug-in hybrid. So it can use mixed fuel. So it can use biodiesel or ethanol or any of those things in its internal combustion engine but we really want to see small internal combustion engines and big amounts of batteries because that's where you're gonna get the best wind on all these different areas: the national security, greenhouse gases, and generally improving transportation.

So adding electricity into transportation is really the key.

*Kevin George:*

Good, good. Thank you for your time.