THE BROOKINGS INSTITUTION

PLUG-IN ELECTRIC VEHICLES 2008:

WHAT ROLE FOR WASHINGTON

Washington, D.C.

June 11-12, 2008

ANDERSON COURT REPORTING
706 Duke Street, Suite 100
Alexandria, VA 22314
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JUNE 11, 2008

PANEL 2: PLUG-IN ELECTRIC VEHICLES: WHERE ARE WE TODAY?

Opening Remarks:

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Moderator:

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Panelists:

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FELIX KRAMER
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PANEL 2: PLUG-IN ELECTRIC VEHICLES: WHERE ARE WE TODAY?

MR. REICHER: Could I have everyone's attention please? The session is about to begin. Well, there was a lot of electricity in the air during that break. I'll tell you, people really enjoyed seeing the cars and there's more to come, so welcome back.

We now have the next session of the conference, and it's my great pleasure to introduce Mark Fields, who is Ford's president for the Americas. In this role, Mark is responsible for all operations involved in the development, manufacturing, marketing, and sales of Ford, Mercury, and Lincoln vehicles in the U.S., Canada, Mexico, and South America. He formerly served as executive vice president, Ford of Europe and Premier Auto Group where he led all the activities for Ford's premium vehicle business group, and for Ford brand vehicles manufactured and sold in European countries. I talked to Mark before the session and he said that 12 out of his 18 years have been outside of Michigan, so he has a very very thoughtful perspective, a very thoughtful global perspective on the automobile market.

He was named a Global Leader of Tomorrow by the World Economic Forum in 2000, and CNBC's Asian Business Leader/Innovator of the Year for 2001. He holds an economics

degree from Rutgers and a master's in business from the Harvard Graduate School of Business. With that I give you Mark Fields.

MR. FIELDS: Well, good afternoon everybody. It's a pleasure to be here to talk to you and as we talk about looking at the business case for a technology that, as you know, holds a lot of great promise. But, of course, with every one of those that holds great promise, there's lots of questions, and I know that's what we're here to talk about over the next couple of days.

Plug-in hybrids offer a very very compelling transportation solution and one that's only going to fully achieve its potential through a shared commitment to both innovation but also collaboration between the various constituencies. Pursuing this and other advanced technologies requires us to collectively, and I mean collectively, address our toughest challenges that we face today: Our economy, our environment, and, of course, our security. And these are significant concerns for every sector that I'm sure is represented here today.

Now the auto industry and our customers have been hit by -- and hit hard by -- rising commodity prices. Record-high fuel prices that all of us are paying and continued difficulties in the housing market have further accelerated the shift away

from large pickups and sport utility vehicles to small and midsize cars and crossovers. Concerns over climate change and energy security also must be addressed.

Now responding to this fairly daunting challenge, set of challenges, will require literally all sectors of the economy and society to join forces to work together towards common goals. And as we continue to push the frontiers of vehicle technologies, we absolutely must strive for solutions that are sustainable in the truest sense, from a social standpoint, environmental, and, of course, economical. And at Ford we're working very very hard to be part of the answer.

As we accelerate the development of products and technologies that people want and value, really driving green is at the heart of our business and our plan to achieve future profitable growth in the business. And we're committed to finding energy solutions and technologies that will deliver meaningful fuel economy improvements, and reducing CO_2 emissions and petroleum consumption at the same time, and ultimately allowing our customers to spend less at the pump. And today we allocate more than two-thirds of our $7 billion annual research and development budget to that challenge alone.

Now there's no silver-bullet solution, so we're pursuing multiple technology paths, recognizing that commercial

viability is an essential component for success. To effect change and essentially to reach beyond the experimental realm, innovation must be sustainable for the company as well as affordable and accessible for our customers. We call it the democratization of technology, which really is part of our heritage at Ford Motor Company. Now Ford's comprehensive sustainability strategy involves developing near-, mid-, and long-term solutions to benefit millions of customers without compromising their expectations for quality, safety, fuel economy, and performance. And we're committed to delivering technology that will be affordable to our customers and can make a real difference by being applied to literally millions of vehicles. The cornerstone of our near-term portion of that strategy and our sustainability plan is something that we call eco-boost. This is a high-volume, turbo-charged, direct-injection engine that allows and offers our customers engines that deliver up to 20 percent fuel economy improvement, and up to 15 percent less CO_2 emissions, and very importantly, a boost to the driving enjoyment. It's a fun car to drive as well as being environmentally responsible. Eco-boost essentially delivers the performance of a V8 with the fuel economy of a V6, or the performance of a V6 with the fuel economy of a four-cylinder engine. And the new Lincoln MKS luxury sedan will be

the first with this new engine next year, followed quickly by our new Ford Flex, which is just coming into the marketplace, and our F-150 pickup truck. And it will migrate across the lineup so that by 2013, we'll build up to half a million vehicles annually with eco-boost. It's affordable technology with a high-volume impact. And importantly for our customers, these engines will pay for themselves years faster than small diesels or full hybrids.

Our plan includes literally hundreds of product actions as we essentially strive to squeeze everything we can out of improvements in things like vehicle aerodynamics, engine efficiency, lightweight materials, all geared to what's very very important to customers these days and what they're demanding, and of course, that's increased fuel efficiency.

We're expanding also the use of fuel-saving six-speed transmissions. And late this year we're launching two new full-hybrid sedans: The Ford Fusion and the Mercury Milan, expanding our full-hybrid fleet to five vehicles, and we're planning clean diesels for both the F-150 and our large SUVs.

But, of course, other technologies are going to be necessary to reach our long-term goals of CO_2 reduction and energy security. And among the most exciting obviously is the focus of today's discussion, vehicles that offset carbon-

intensive petroleum use, operating on domestically sourced electricity that, with the proper support, could be made accessible to customers nationwide. Now last July we formed a unique partnership with Southern California Edison, the first time our two industries have formerly committed to work together to accelerate the commercialization of plug-in hybrids. After all, we now share a common customer in a very all-new way. And one of the first things that we've learned is that our industries first know very little about each other, and developing a common language between our two industries and companies was one of our first goals. And we've now jumped into a number of specific things in that relationship, including things like identifying all the key stakeholders required for success, plug-in hybrid electric vehicle total lifecycle analysis, helping develop the appropriate electricity rate proposals, and a whole host of other technical standards required to really realize the full potential of plug-in hybrids.

Now through our partnership we're beginning to understand the very complex issues at hand, regional and national in nature, and we're working to lead our collective industries forward in developing solutions to the technical as well as the economic challenges. Southern California Edison is

one of our country's largest utilities, with more than 25 years' experience testing electric and plug-in vehicle batteries. And we're working together to figure out how to best accelerate the commercialization of plug-in hybrids and reshape our respective businesses for the future.

Earlier this year the partnership was expanded to include the Electric Power Research Institute. Now, EPRI brings a tremendous amount of experience and expertise in electric transport, and also provides a national perspective for us to ensure that our program really addresses any regional differences related to plug-ins and the electric grid on a nationwide basis.

Now to advance this technology, we're already road testing the first of twenty vehicles, Ford Escape plug-in electric hybrid vehicles, that we will be providing Southern California Edison. And as we start going on with this testing, imagine getting up to 120 miles per gallon for the first 30 miles following a full charge. Those are the kind of numbers that our Escape plug-in hybrid can achieve. Its reduced fuel consumption comes from a 10 kilowatt per hour high-capacity lithium-ion battery that can be charged from a standard 120 volt electrical outlet and then discharged during the driving experience. It's recharged overnight from a standard home

outlet, and based on typical American driving, a fleet of vehicles, such as our Escape plug-in hybrid, have the potential for displacing 60 percent of fuel consumption nationally. And the range restrictions do not pose a problem. When the battery charge has been partially depleted, the vehicle continues to operate as a standard hybrid electric vehicle, or what's known as a blended plug-in HEV.

A recent addition to our demonstration fleet is a plug-in hybrid electric vehicle that's capable of operating on E85. As a leader in both hybrid and flexible fuel technology, Ford we feel is well positioned to bring the two together in the plug-in vehicle and to demonstrate the potential for CO_2 reductions and also energy security.

We also have many partners here at the Conference today, and I'm pleased to announce that our partner, Johnson Controls-Saft, will provide the batteries for our 20-unit fleet of the Escape hybrid plug-ins that I just mentioned. And we believe strongly that partnerships and collaborations are absolutely critical to bringing emerging technologies from the laboratory onto the street.

And, of course, plug-ins are not without their challenges. While the basic architecture is similar to our current hybrid electric vehicles, there are a number of

engineering challenges. And solutions need to be found for systems that would traditionally rely on a conventional engine -- things like emissions control, trans-actual lubrication, even cabin features like window defrost and heating, those type of things. We've also been working on other technical hurdles and we're confident that we have the expertise to properly design a robust plug-in hybrid. But in order to deliver plug-in hybrids to the mass market, challenges that lie outside of the automotive realm must be addressed. Viable solutions to these issues can only come from partnerships with other sectors of the marketplace.

First let's go through a couple of them: First, there's the battery. The advancement in lithium-ion technology is what makes plug-in hybrids possible, but the technology is still new for vehicle applications. For example, will lithium-ion batteries prove durable, especially when they're subjected to the vibrations and bumps of 150 thousand miles of real world street use? Will they meet customers' expectations in the extremes of, let's say, a Minnesota winter or an Arizona summer? Will the packaging and controls that we have on the vehicle provide the level of quality and safety that consumers demand and expect from our products? Now while they're getting closer, battery manufacturers have a ways to go before they can commit

to providing batteries that meet OEM safety and durability requirements, and at a cost and volume necessary to support substantial production, and at a level that would affect national petroleum consumption and carbon dioxide emissions. Will the batteries be able to do all that and be affordable to the average consumer? It's also important to note that most battery supply today is currently being developed in Asia. And for those looking to plug-ins to answer our energy security concerns, we must ensure that we have a domestic battery supply. Moving from imported oil to imported batteries clearly would not address this growing concern.

The other major prerequisite for commercial viability is a robust recharging infrastructure. Now recharging, as you know, is as simple as plugging in the vehicle and not much different from any other household appliance. But the infrastructure to provide that plug needs a lot of work. Among the factors to consider is access. Nearly everyone has electricity, but how many potential consumers have garages? Access to overnight charging isn't readily available for most people, for example, who live in apartments or townhomes or condos. Or for that matter, for suburban families with teenagers or simply too many outdoor toys that are stored in the garage that you can't get into the garage. Sounds like some of

you fit that bill. Now 100-plus years of experience with gasoline has insured that a nationwide infrastructure so that when you decide to go from New York to California, you don't have to worry about getting fuel. But a public recharging infrastructure for plug-in hybrids simply doesn't exist at this time -- and I know that Shai Agassi talked a little bit about that in his remarks.

Another area is payment. Now perhaps the most perplexing issue is when you're not at home, you know, how do you pay for the electricity that you use to recharge your vehicle? Or for that matter, how do you know how much that electricity will cost? Because, as you know, rates vary from region to region and soon from hour to hour, and this is not like sitting in the airport and you see everyone plugging in their laptops or their cell phones before they go.

Another area is the utilities. The petroleum industry involves only a handful of participants, but in the U.S. there are literally thousands of utilities which would need to unite in recharging protocols and billing to provide the seamless infrastructure needed for a mass market.

Now we're working to find the right answers, and through our partnerships with Southern California Edison and the Electric Power Research Institute, we're looking at things such

as the charging infrastructure, how the vehicle connects to the home, and how the vehicle connects to the grid if it's not charged at home, as well as other opportunities to advance the battery market to essentially bring costs down and to perhaps provide distributed energy storage to strengthen the overall grid.

Now through this collaboration we're really gaining and starting to gain some real world experience with customers throughout the country. And that experience and the data that we collect will help us do the necessary business analysis to determine the viability of plug-ins. Now I think we'd all agree that we want to reduce carbon dioxide emissions and improve our nation's energy security. But how do we achieve these goals in a sustainable way? Making a business case that provides value to the customers, value to the utilities, and, of course, I feel strongly that domestic battery production must be prioritized. The Energy Independence and Security Act of 2007 went a long way towards developing research and development and demonstration programs for plug-in vehicles and batteries. We now need to execute this and ensure the programs get the appropriate funding.

And just as the Department of Energy recently placed nearly $400 million with various ethanol producers to hasten

commercial applications, bold and dramatic incentives are needed to accelerate the commercial development of high-energy power batteries right here in the U.S. It's a critical factor that requires support, and there are others that, without subsidies, simply we cannot advance. Plug-ins hold the potential to dramatically reduce CO_2 emissions, help address our nation's energy security issues, and contribute to economic stability and employment. Setting the stage now is absolutely critical to move beyond a low-volume manufacturing cost penalties and advance to full-scale production with cost efficiencies making the benefits of plug-in hybrids accessible to customers nationwide.

Now in order for us to succeed, we must make this a national priority. We're doing our part to transform the industry and invest in new technologies. However, in a global environment with global competition, a substantial government partnership is required. Now the governments of Japan, China, Korea, and India are all significantly funding the research and development and the deployment of plug-in hybrid vehicle technologies. This is a race we absolutely must win as a nation. We should not trade one foreign energy dependency for another. For us, the energy future vision for success is clear. We must achieve the most economically efficient carbon reduction

and fuel economy improvements as possible. And whatever we do, our actions must be affordable for our customers and our business. We simply can't do it alone. Government should be a key partner in promoting American manufacturing and the fight against global warming and for our nation's energy security. We won't be successful unless industries and governments all start working together in a constructive way.

So in conclusion, among the key actions the government can take are things such as creating a new industry-government partnership to aggressively advance battery research, development, and commercialization; things like injecting significant federal funds into advance plug-in vehicle technologies and into facility retooling to produce these vehicles; enacting comprehensive climate-change legislation requiring regulatory policies that stimulate innovation rather than just imposing new mandates; and enacting one national standard for fuel economy rather than allowing a patchwork of state and federal regulations. We will only be successful if we work together towards those shared goals and our shared goals. Industry, utilities, battery suppliers, the government, we all play a very critical role in driving the development of successful plug-in hybrids that people really will want. And today I'm convinced we're at a juncture, we're at a very

critical juncture. Continued government investment, incentives for industry to continue pushing on research and development of this emerging technology, and rewards for our customers who incorporate into their lives our keys to real and lasting change, and a future of greater energy independence in which we can all thrive.

So with that, I want to thank you for your time.

MR. SANDALOW: Thank you very much Mark. Thank you both for your work on this issue and for your frank assessment of the challenges associated with success. And that really is the topic of our next panel, and as the panelists come up, I just want to set the stage here a little. We hope that you got excited about the opportunities for electric vehicles in the first session, and in this session we're going to talk about "where are we now" and what are the challenges in trying to realize the potential.

I will introduce only one of the people up here, just like in the last session. The moderator, whose name Juliet Eilperin, is known to anybody who lives in Washington, D.C., and pays attention to energy and environment issues. I have to say, Juliet is astonishingly and intimidatingly productive. Anybody who follows her by-lines will find day after day thoughtful pieces on energy and environment, and now as I understand it she

is also spending half of her time covering the McCain Campaign, and she's here moderating our session. I appreciate that. We appreciate that very much.

One reminder for those in the live webcast audience, you can send your questions to electricvideo2008@atlanticmedia.com.

We are going to start this session with a wonderful video. We have had an outpouring of interest in this topic, in this conference, from the Hill, with lots of offices calling to express their interest and enthusiasm, and we're honored to have a special video statement to open this session from Senator Evan Bayh. Thank you.

(VIDEO PLAYBACK)

MS. EILPERIN: Thanks so much. Now in journalism we care about accuracy, so I'm going to start this panel with a correction, which is that the correct URL for commentating if you're watching the webcast is electricvehicles2008@atlanticvideo.com. So just so you can help participate.

Now I'm going to do a rapid introduction. You have the bios of everyone, but for people who might be watching the web, I'll just give a brief introduction, then everyone's going to give brief remarks, and then we'll go to questions.

So immediately to my left we have Felix Kramer, who's an entrepreneur and lifelong environmentalist, concentrating on innovative ideas, events, and businesses in energy and technology. He builds ambitious and first-ever projects and companies, and in 2002, working with entrepreneurs, environmentalists, engineers, and drivers, Kramer founded the non-profit California Cars Initiative to put plug-in hybrid vehicles on the map through technology demonstrations, advocacy, and buyer demand.

Next to him is Thomas Kuhn, who is president of the Edison Electric Institute, which is an association of investor-owned electric companies whose members generate and distribute approximately three-quarters of the nation's electricity. And I'm always bothering people in his shop, so it's great to have him on the panel.

Alan Madian is an economist, management consultant, and investment banker, who has provided services as a policy advisor, strategy and implementation consultant, financial advisor, and expert witness for more than three decades.

Then next to him we have Bill Reinert, who is national manager of Advanced Technology for Toyota Motor Sales, U.S.A. His primary function is to coordinate Toyota's various research,

development, and marketing activities related to alternative fuel-based vehicles and emerging technologies.

And then at the end, last but not least, we have Mary Ann Wright, who is vice president and the general manager of hybrid systems for Johnson Controls, and also leads the Johnson Controls-Saft Advanced Power Solutions joint venture. Ms. Wright joined the company in March 2007 and is responsible for accelerating the growth and executing the launch of hybrid, plug-in hybrid, and electric vehicle battery programs with an emphasis on state-of-the-art technology, manufacturing, and electronics integration.

So with those brief introductions, I'm going to have people give opening statements. And then just the one framing question, which I'd like to pose as you talk about your different perspectives, is that as someone who simultaneously is covering energy and environment and the campaign, I've spent quite a lot of time with John McCain and a little time watching Barack Obama talk about how technology is essentially in many ways going to help save us from two of the problems facing the nation, which would be climate change and dependence on foreign oil. And so they talk extensively about these issues, about plug-in hybrids, and I'm interested in, you know, how much can we depend on the technology that we're here to discuss today to

work to ease those two questions, and how close are we to reaching implementation on a broad scale? And so with that, Felix, if you want to start out.

MR. KRAMER: Good afternoon. In 2006 we brought a plug-in hybrid car to Washington, D.C., and we showed it to senators and congress people. I never imagined we'd have this level of interest two years later. The message we were giving then was that this makes sense now because of what electricity has going for it: Cleaner, cheaper, domestic. The message was we can do this now, here's a car, and the message was we don't need new technology, we can use better technology, but it's good enough now, and we don't need a new infrastructure, we don't need technical breakthroughs. This plug got a lot of laughs at the House Science Committee, and Jim Woolsey later said yes, every family will have to invest in the new infrastructure -- they'll have to buy an extension cord.

So our mission has evolved since then to successful commercialization as soon as possible, and each of those has a significant meaning. We are going to see an explosion of plug-in cars of all kinds between 2010 and 2012, and we think after -- since working on this since 2002, it ought to be even sooner. And when it comes, it should not be a dribble into the marketplace. It ought to be really massive because we don't

have time to wait. We can't let this happen slowly. We want it to be successful, and we want to work with the carmakers to give them whatever they need to make it successful. We want to find whatever encouragement and whatever methods can do that.

We're also internationalizing the campaign. Outside you can see this book, The World Wildlife Fund's report by an Exxon Energy specialist about the international implications of plug-in cars. It's a great book and you can get a copy.

We're basically moving from simply talking about plugging in cars to that broader message that it's time to electrify transportation as much as possible. And what that means is something -- in addition to getting carmakers to build new plug-in cars, something that we have really only begun to think about, and we think there are enormous business opportunities and enormous opportunities for government -- which is to do something about the 950 million cars on the road today, the internal combustion engine cars. What if we could take 20 or 30 percent of those cars and power them partially by electricity? In terms of -- comparing that to the market penetration of new plug-in hybrids -- that would have a much faster petroleum displacement benefit. And so we're looking at that and there are a lot of good solutions. And we have a new recruit to the cause of plug-in hybrids this week -- Andy Grove,

the former chairman of Intel. He has been talking enthusiastically about that, and you can get his article, which is going to be in the *American* in a couple of weeks, outside. And he's going to become a real strong advocate for that particular point, which is how can we convert those cars that are on the road today to a combination of energy service companies, federal incentives, and so forth?

And the last thing is what are we going to do about this Presidential Campaign and what's going to happen in it? The model I have is really -- I'm not a lawyer -- but the model I have is a stipulation. We are working -- we hope that the candidates will agree, just as they have about Darfur, just as they have about the California emissions -- that plug-in cars will not be a campaign issue; that they agree on it. And that the carmakers of the world need to get the message now that whoever is the President next year, the whole situation's going to change. There are going to be massive new promotional programs, incentives, and so forth. We hope it's along the lines of what David Sandalow has presented in his points in the book. But we think that if the carmakers knew that now, their business models would have to adjust to take that into account now, not next January. And a year makes a tremendous difference in terms of energy security and CO_2 emissions. Thank you.

MR. KUHN: It's hard to follow that, I ought to just say "me, too."

You know, when David first mentioned this conference to me, I don't think either one of us would have envisaged the great crowd of people that we have in this room and the enthusiasm that we have behind this mission and cause. And I think that answers your question about, you know, can we do this thing? Can we do it? I think absolutely, positively, and it's coming. I talk about the two transformational technologies in our business -- and I think Peter Darbee did a great job on that -- and that is the "smart grid." You know, we're going to have smart meters, we're going to have ways that communicate with you and allow you to use your electricity a lot more efficiently in the future, and we're going to have plug-in hybrid vehicles. And those things are going to transform our industry, but they're also going to transform the automobile and transportation industry. I think it's going to transform energy security in this country, as well as the environment. And we are very very dedicated in the electric utility industry. We think that time has come.

You know, it's -- you can go back to Thomas Edison's time and actually he was in favor of the electric vehicle at that point in time. A good buddy of his, Mark, was Henry Ford,

and Henry Ford -- Thomas Edison went out to do the utility industry, Henry Ford went off to do the auto industry and obviously chose a different path. But I think that, for various reasons now, we see ourselves coming very much back close together. I think that -- you know in 1994 I signed an agreement with Al Gore, which was the first voluntary program to reduce global climate emissions, and it's still the largest and most effective in this country. But one of those programs we set up just as a long-term program -- we didn't think it'd have any short-term effect -- was a program called EV America and it was a partnership with the auto companies and the electric companies to help develop the electric vehicle. Well that was 1994, and Chelsea, I know you wrote the book, I mean the movie, the great movie "Who Killed the Electric Car?" But quite frankly, I think it's like Mark Twain. The report of his death was very premature. Nobody actually killed the electric car because it made progress, we made progress in the electric drive, we made progress in the batteries, we're making progress in a lot of the technology, and right now we've got a whole different conception of what may be offered to the public.

So, I think that right now we have the political support for this, there is tremendous political support. There's support from companies right now, there's support from

the auto industry right now, and I think that's going to change this whole dynamics in a major way. People in this country are mad, and previously when they were mad they came up with things like the Mothers Against Drunk Drivers and that transforms society in a lot of ways, certainly from the time that I was growing up. And I think they're mad right now and I think they want to get off OPEC. As Jim Woolsey said, I think we're going to see signs out there that say NOPEC -- No On Oil and Purchase Electric Cars. NOPEC -- "No On Oil and Purchase Electric Cars."

MS. EILPERIN: Good job! Alan?

MR. MADIAN: I'm going to address the question of how long it will take for plug-in hybrids to have a significant impact on oil usage. You might want to write down your own estimate, and then I'll go through the analysis. The short answer is quite a long time unfortunately. The long answer involves an analysis with three elements: Assumptions, facts, and forecasts.

Let's start with assumptions. On defining displacing a significant amount at 10 percent of the liquid fuels that are being used by the vehicle fleet -- and I'm assuming that hybrids are operating two-thirds of their miles electrically. Many of you picked up a data book that I put together with some of my

colleagues. There are some tables in that book that you may find useful when thinking about this presentation.

Next are the facts. The number of light vehicles in service in the United States now is about 250 million. And it's growing about 1.75 percent per annum, which means approximately 4.3 million additional vehicles each year. The size of the fleet is important because plug-in hybrids will need to be at least 15 percent of the market in order to displace 10 percent of the liquid fuels. Since plug-in hybrids are likely to disproportionately replace smaller vehicles, their fleet share may have to be a little bit higher than 15 percent. Annual new vehicle sales are 15 to 16 million vehicles. As you all know, annual sales of new vehicles are profoundly affected by demographics, by consumer sentiment, and by improved vehicle durability, and the choice of vehicle obviously is often affected by the price of fuel. Now if we look at what's happened with hybrid vehicles to date in the United States, approximately 1 million have been sold, and that's over a period of in excess of 10 years, and we're only to 1 million. And the expectation is that this year we'll sell 400 thousand, which is approximately 2.7 percent of total sales.

And now we come to forecasts. With 400 thousand 2008 sales and a 14 percent compound annual rate of sales growth,

hybrid sales have recently been forecast by Morgan Stanley to grow to 2 million by 2020, which is about 13 percent of sales. Morgan Stanley's estimate for plug-in hybrids for the period from now to 2020 is 3.8 million plug-in vehicles, which leaves a 2020 hybrid fleet with no attrition at 1.2 percent of the total fleet. If Morgan Stanley is right, and they're frequently viewed as being unduly optimistic, and we further assume a robust 15 percent compound annual rate of growth in hybrid market penetration for the 2020-2030 decade, we would get to 27 million plug-in vehicles or 7.3 percent of the fleet in 2030. With another six years at 15 percent compound annual growth, our estimated plug-in vehicles reach 68 million in 2036, which allowing for fleet growth, represents about 16.4 percent of the light vehicle fleet.

So we have our answer. Given the assumptions, we can expect to see a 10 percent light vehicle liquid fuel displacement in about 28 years from plug-in hybrids. But note, while we have forecasted achieving at 10 percent displacement of liquid fuel at present growth rates, the light vehicle fleet will have grown from about 250 million vehicles to 413 million, or by 66 percent.

So unless substantial efficiency gains are realized simultaneously through the use of other technological

improvements, the liquid fuel alternatives or plug-in hybrid penetration that vastly exceeds the optimistic assumptions I have utilized, we may be using more liquid fuels and possibly even more petroleum in 2036 than we are now. If we are to curtail our petroleum use, we will have to wage the battle broadly on multiple fronts. Plug-in hybrids can make a significant contribution, it's a wonderful technology, but they can only gradually provide a small part of the solution.

MS. EILPERIN: Okay. Following those bracing comments, Bill gets the chit.

MR. REINERT: So when we start to plan a car, we start five years out and work inward, and pretty much then my team gives up two years from production. So that's pretty much how it works. On other cars like plug-ins or fuel cells, sometimes we'll start much further out and work toward a product. So we're looking into the crystal ball at what the customer's going to want, what the economic situation's going to be like, what the energy situation and the regulatory situation's going to be like. And, of course, today it's different than it's been in the last five or ten years, and we see tremendous volatility in oil prices. They're not going to just go up all the time; they're going to come back down, too. And when they come back down, we're going to find out do we have economic elasticity

compared to oil or demand destruction. Sure there's a lot of people going to the smaller cars, but is that -- if oil and gasoline -- if oil goes down to $60 or $70 a barrel and gasoline gets back to $2.50 a gallon, and that very possibly could happen, will that demand stay the same or will we shift back up? Okay, so that's something we need to look at in our crystal ball.

What will happen to cap-and-trade CO_2 systems as we start to reduce the carbon? When we talk about these plug-ins being a lower carbon solution -- and I'd say that's questionable, we'll have to talk about that -- but if they are a lower cost solution, who owns that carbon? Who owns that cost of carbon reduction for that electric-miles traveled? Do I own it at the tailpipe? I think I do, but then that puts the burden on the electric industry because they're burning coal to get that electric-miles traveled. So I think we need to have these discussions about that because that affects the cost of my product going out.

The other thing is how do I design the product to get the right price? As you've just heard, we don't need tens of thousands, we don't need demonstration fleets, we don't need government subsidies, none of that's going to work if you're looking toward millions and millions and millions of cars. If

you really want -- forget the U.S. market. We've got a 1 billion-car world fleet that's growing rapidly in India and China and Russia and the Arab countries. So forget the U.S. because whatever we do to reduce oil consumption, it won't make a drop in the bucket with the increase elsewhere.

So those are the kind of issues we need to really affect. We've got to put mass cars out on the market, not just in the U.S., but in Asia and Europe and developing countries. The cars have to have 150 thousand mile durability. No mistakes. Don't kid yourself, no mistakes. And they're going to have to give the consumer what they want. We can -- yes, I can drive our plug-ins and we're bringing them in, and we've bringing -- we've got another wave coming that's more advanced, then another wave behind that. And just because Toyota doesn't talk about that doesn't mean that we're not doing it. But the fact of the matter is, is there's a huge variability in the gas mileage you get -- I see 100 miles per gallon here -- and yeah, you can do it if you're driving 35 miles an hour. But if you're on the 110 Freeway going to Pasadena where you've got an on-ramp that's not even as long as this stage, you've got to run wide open throttle to get into the lane and not get killed. And when you start doing that, you know, what you started out with a 20 mile range becomes a 5 mile range, and what you start out as 110

miles per gallon ends up being more like the common Prius. So you got to worry about that kind of stuff because you don't want to send mixed messages out to the customer. You also don't want to say it's always going to be cheaper to drive than a gas car. It may not be. My Prius gets 53 miles to a gallon on the 405 everyday. At $5 for gas, that's about 10 cents a mile. If I'm driving my car hard, I'm getting on electricity, those costs go up. So you've got to be careful about that, okay?

And the final thing I'll say you've got to be careful about is the packaging on the car. I fought like Hell to keep leather out of the interior of the Prius and almost lost my marriage out of it, so --

MS. WRIGHT: Well, in Mary Ann's world, being a vegan, there is no leather in your cars anyways.

So before Johnson Controls entrusted me with building their hybrid battery business, I had a previous life at Ford Motor Company where I worked for Mark. And probably the greatest achievement I had in my career was being the chief engineer of the Ford Escape hybrid -- engineered in the United States, manufactured in the United States, and a really great performing vehicle. I personally have a passion for it and you'll probably see me jumping out of my chair.

But we're all going to see probably four things that we want to talk about. You know, the technology roadmap, how are we going to commercialize it in terms of infrastructure and cost. What's the government's role going to be in this? I think what I'd like to spend a minute talking to you about is the technology roadmap. And I think it's really important that if you walk out of this room with one message from me, that is understanding the difference between a hybrid and a plug-in. And when you look at hybrid technology -- and let's migrate from nickel NI hydride, which Bill and I have a lot of familiarity with -- and we're migrating to lithium-ion, which is the technology of the future. When you look at hybrids, I will tell you, those lithium-ion batteries are ready to go into production, and in fact they will be going into production. Johnson Controls-Saft will be putting lithium-ion batteries in the Mercedes S-Class next year. They meet all of the rigorous automotive standards around safety, reliability, performance, and useful life. Now having said that, plug-ins are a different cat. You're managing a tremendously more significant amount of energy, a very different usage profile. Now the cool thing is, we're taking the learnings out of our hybrids and we're going to be able to transition that and accelerate it by -- in our PHEV and our EV applications. And as a matter of fact, through those

learnings, we now have the confidence -- Mark told you we're partnered up with Ford on a plug-in hybrid Escape fleet, getting out on road later this year. We've got plug-in fleets with Chrysler, the Sprinters. We actually did a fuel cell plug-in for Shanghai Automotive that is being put in the vehicle now and the GM Saturn Vue. So the technology is getting to a point where it's good to get it into a vehicle and find out what's going to happen when you get it out on the road so that we can have the same level of confidence we do in hybrids.

And so I think what I'd like for the group here to recognize is that we are making significant strides in the technology. It's very promising, and we're getting to a point now where we'll work through those technology challenges. We've got to also turn our focus to how do we make these things affordable so we can make a lot of them. We can develop a diverse supply base because I've got to be honest with you, as much as I love my Asian partners, I want to see the United States once again be considered to be a dominant force in advanced technology, relevant technology. We'll have to be developing our supply base here in the United States. We've got to establish our manufacturing infrastructure. We can rebuild it, and we're going to have to build new skills. So I think there's a lot of potential. I think there's a lot of reason for

us to be optimistic, and I think there's a lot of reason for us to believe that, irrespective of the numbers of how much oil will be displaced, that we're on a path. And we're on a path that we need to accelerate and focus and work together. And clearly government is going to have a significant role in that in terms of providing incentives, not only for the customers to buy it, but for manufacturers to want to do it here and to build that infrastructure and build that capability here in the United States.

And I believe I've stayed with the rules in three minutes, right?

MS. EILPERIN: That was fabulous. Let's give her a round of applause for staying within the three-minute limit.

I'm going to start out with a question from the web. This is from Stephanie Cohen, who's a local freelance reporter, and the question is "Will GM's Volt promise for 2010 be successful in the U.S., and more broadly what will determine whether an American automaker can be successful in mass producing plug-in vehicles to U.S. consumers?" So even though obviously we don't have GM, I'd just be interested if, you know, particularly on the end whether, you know, Bill or Mary Ann can speak to -- you know, what will determine success for companies

that are particularly marketing plug-in hybrids for American consumers?

MR. REINERT: Internally, and I'll tell you is you hit your numbers. You're going -- you go into this and set your plant up and your supplier base -- it's extraordinarily complicated to make a car -- and you want to hit your numbers. If you say 60 thousand or if you say 40 thousand, you want to hit 40 thousand. I almost lost my job because we said 20 thousand on the Prius and we hit 50 thousand. That's as bad a problem as missing your numbers low. So that's number one, do they hit their numbers?

Number two, does the product increase at a rate that makes it -- gives a reasonable payback? Do they hit their numbers on the price? Do the customers buy it? And does it increase and cause other products like it to hit the market? So that's what I say, do they really hit the numbers from a pure product point of view? And do other people adopt that type of -- it's a series hybrid, we use a series parallel, they're using series hybrid, and will other people go toward a series hybrid?

MS. EILPERIN: Okay. Do you have anything else to add?

MS. WRIGHT: Well, I mean, clearly we want it to be a success, right? I mean, none of us benefit if it weren't to be

a success. But I think number one, you could call it an early success in that it has really instigated a lot of enthusiasm in the market for a technology. And around the potential of a technology and a really sexy car that offers a lot of flexibility around fuel usage and the potential for reducing fuel consumption. So I think -- you know, Bill, I absolutely agree with you, but I think we also have to look at how is it -- is it invigorating the marketplace? Clearly the battery suppliers are going to have to be able to demonstrate capability to deliver a battery that will meet 150 thousand miles, ten years. And I would go back again and say we've got to get vehicles out on the road. We have to understand what the usage profiles are going to be. We have to be able to design systems around them so that, yes, they can be robust.

And one last thing, and then Felix, I know you want to jump all over this, but one last thing. I mean, if you took a look -- Alan talked about selling hybrids over the last ten years -- think about a hybrid even four years ago or five years ago, you're like, you know, I'm going to wait for a year or so until they get the bugs out of it. The fact is the vehicles that are out on the road with nickel NI hydride perform extremely well. They're very reliable, high quality, and they're safe, and that's enabled us and given us permission to

go forward and move forward with the technology. So I hope and I, you know, I continue to work with my partner GM. I want them to be successful. We need them to be successful. Just like Bill needs to be successful, and Mark needs to be successful.

MS. EILPERIN: Okay. And Felix, and then we're going to go to questions.

MR. KRAMER: I think GM's doing a lot of things right; I don't know that they're going to succeed. Their Board of Directors has made the Volt, turned it from a concept car to a production vehicle a week ago. They have said specifically a couple of real important things. They said we're taking a leap of faith on this car because we think this is the direction the world is going. They're saying, in other words, it's the end of business as usual. And that *Atlantic* article that's out there talks about that in depth. And they're being very transparent about it. They're saying -- they're opening up everything that's happening, which means that they get the American people on their side to help them succeed, and hopefully they get all the resources they need to get them to succeed.

One other thing that they're doing, which is really important, is they understand this thing that we talked about this morning, about dollars per mile. If you switched miles per gallon around and you do gallons per mile, then you realize the

bigger the vehicle, the better the benefit in electrifying the car. That's really important.

MS. EILPERIN: Okay. Now that we've learned that opposing leather interiors is dangerous for your marriage, and underestimating car sales is dangerous for your career, let's go to the mike. And anyone who wants to ask questions, we have 15 minutes for questions. Let's start with this gentleman. And if you could identify yourself, it would be helpful.

MR. JUNG: Sure thing. My name is Michael Jung. I work for Silver Spring Networks. We've heard about how important the "smart grid" is for making a plug-in hybrid electric vehicle world possible, and I think we understand that plug-in hybrids and other electric vehicles are a killer application for the "smart grid." Sort of like word processors for computers, let's say. How important is it that the endpoint become a ubiquitous, totally open, inoperable network of fueling stations, quote end quote, just like fuel pumps are today or are wall sockets are today for electricity? How important is it that they become a ubiquitous and open standard, and are we going uphill given that state-by-state jurisdiction is where we're at right now as opposed to a unified federal perspective on this?

MS. EILPERIN: Okay, looks like Bill?

MR. REINERT: That's really hip that you understand that. I'm a contrarian. I don't believe in nighttime charging. I don't believe in charge discipline. I don't believe you ought to do that because if you start doing that, one is you start making the battery too big, the cost of the car gets too heavy. And two is, you start trying to force consumer behavior into a narrower band and less people want to get the car. So if we have ubiquitous charging -- like you say, kind of like the web -- where you've got an avatar onboard your car that I might want to use coal, electricity. Jim Woolsey might want to use solar, so we've got different price points and we can negotiate with the grid to do that or charge roaming, just like your cell phone. I don't want to care where I plug my car in, and I don't want to have to swipe a credit card, or if I can call my car up on my iPhone and have it turn on the air conditioner or the heater, and take that hotel load off the car so I could have more battery for traction, that's why I think it's really cool what you're talking about.

MS. EILPERIN: Tom or Alan, did you have --

MR. KUHN: Well, I think the smart technology that you mentioned is coming on a whole different front other than the electric vehicle because it makes sense to the consumer from the standpoint of every usage you could have for electricity. But I

do think that for the vehicle, it's going to offer multiple opportunities. And I think whatever batteries we choose, customers will choose to, in many cases, to charge their cars, you know, on off-peak power. Because the price differential is going to be so incredibly different, it will be amazingly different. And for our industry, it -- the reason we'll be able to do that is because we are probably one of the more inefficient industries because we can't store electricity. If we were in the hotel business, we'd probably be close to bankruptcy because from a capacity factor, you need to fill up those power plants. We don't want to build additional power plants. We won't need to with the electric vehicles if we can get the power charged overnight.

MS. EILPERIN: Okay, can we go on to the next question. Thank you.

MR. WOOLSEY: Jim Woolsey, Vantage Point. I have a question for Alan Madian about the study he described and whether it assumes, as most studies do, that the average cars they do today coming into the fleet in the U.S. will stay in the fleet 15 years or so. Is that one of the assumptions of what you did?

MR. MADIAN: Unfortunately, the durability has increased significantly and we're now looking at an average of

about 18 years and growing, which is a further problem which I didn't go into.

MR. WOOLSEY: Let me make an observation. If any of you has been to Japan recently, you will know that all the cars look new. The reason is all the cars are new. The reason is the Japanese have incentives to trade in your car quickly and so innovations get introduced into their fleet a lot faster than they do here. These are choices we make as a nation, whether to have incentives like that, as Japan has, or not to have such incentives. We can choose to be as smart and aggressive as the Brazilians, and go in two years from having 5 percent of our new cars being flexible-fuel vehicles to 75 percent being. Or we can take our time about it and say, gee, it's really hard because we're Americans and we aren't as smart and quick as the Brazilians or the Japanese. Do you think it is possible for us to be as smart and quick as the Brazilians and the Japanese?

MR. MADIAN: Having spent time in both Brazil and Japan, I have little doubt we can be as smart in terms of any group of us discussing it. I think politically, we may not have the capability, but I hope I'm wrong about that.

MS. EILPERIN: And Jim Woolsey can discuss that with John McCain next time he's out on the campaign trail. Is there a next question?

MS. DUXBURY: Good afternoon. My name's Peggy Duxbury and I'm from the other Washington, in the Pacific Northwest. And I work for Seattle City Light, the municipally-owned utility for Seattle. And we're in the process of converting thirteen of our Priuses in our fleet to plug-in with "smart grid." And my question really is for Tom Kuhn, which is I think a lot of us in the utility are ready to become the gas station of the future, but I think there's others that are very nervous about it and reluctant to take that on. Can you give us some recommendations on regulatory, either state or federal regulatory, ideas that we can start to undertake as a country to make us feel more confident that the utility sector can take on this new responsibility?

MR. KUHN: I think you've addressed an important issue in Seattle, Seattle City Light, Austin, and there's a lot of -- and the public power movement that have the leadership in this role, too. We have a lot of companies that are moving ahead -- PG&E, Excel, Edison International, you could go on, Progress Energy, where I could talk about the folks with real passion in this. There are people out there that are saying well, I don't know, it didn't happen last time so is it really going to happen this time. I think that's changing very very rapidly, though, and I think that people are saying well, we see the reality of

the auto companies talking about really producing these cars. We have to work with our, you know, with our government, state and local officials, our regulatory utility commissioners, who I think are going to be very very excited this thing, to address those infrastructure issues. We've got to start pumping this up very quickly and strongly. I think we're going to do that, again, with EPRI and EEI and others working together. So, I see it happening and I think those city electric companies and public power are going to continue to be major leaguers.

MS. EILPERIN: Great.

MS. WRIGHT: One comment. Brian Wynne and Genevieve Cullen, are you in the room? Okay. We have an organization called Electric Drive Transportation Association, which we sit on the Board, and it's an industry association that truly is an industry. The car companies, the suppliers -- I know Ric Fulop from A123 is here -- the utilities, we all come together as concerned stakeholders to try and find solutions for exactly what you -- the question you just asked. It's unified standards, it's compatibility around infrastructure developments, how we're going to measure all the things that Bill talked about. I would encourage you to get informed and perhaps join here as your campaign, Brian, in terms of what we're trying to do with EDTA, because we go as a group as we try

to help influence policymaking around building a truly unified position for the United States.

MR. KUHN: I would second that motion. EDTA is going to be a great organization to help us get there.

MS. EILPERIN: Next question please.

QUESTIONER: Hi. Jack Hidary, Service Chairman of Smarttransportation.org. Alan, your bracing, bracing numbers I think are a good antidote to some of the hype around the industry, and given that, I want to build on Jim's comments. The fact is in this country we have done programs where we've changed out fleets. The fleets in those cases were air conditioners and refrigerators. We did have massive nationwide programs with rebates, with incentives, that said bring in your air conditioner, bring in your refrigerator, we'll give you a rebate, we'll get it off your house, and we're going to get you into an Energy Star-compliant device. If we were actually to construct such a policy in this country for fleets -- because Alan, your numbers dictate very clearly that the sooner you do this, the better, given the growth rates and given the oil usage -- what would some of the key elements of that be? And by the way, one of the key items that is hurting Detroit right now in terms of jobs is that we're stuck right now at about 15 -- just over 15 million new car purchases every year. We used to be

about 17 million, now we're at 15. And there's really no way to bring back Detroit unless we sell more new cars. Well, one of the facts in this country is that how many used car transactions do we have? We have 45 million used car transactions in the country, three times the number of new car transactions. So for Ford and Toyota and all the different car manufacturers to really get back up to speed, we need new car transactions. And, of course, a rebate program properly constructed would help do so.

I guess, asking the panel, what are some of the key elements you would want to see in such a policy that would encourage people to get some of these new cars -- obviously only eligible for these new plug-in hybrids or other high mpg cars -- and what kind of timeframe do you think is realistic to put out there? Thanks.

MR. MADIAN: Well I think there are a couple of issues here that you've got to look at very closely. And I think there's no question we want to have a program of incentives, but we want to have it timed simultaneously with the development of the supply chain. So at this point, one of the questions is how many of these can we build with batteries which will have, let us say, a 40-mile capacity? In what timeframe? And let's assume that we can get to 100 thousand in 2011, which may be

slightly heroic. And how fast can we ramp that up? I mean, obviously Toyota sales last month of the Prius fell 23 percent. My assumption is that was the result of their having sold out of inventory in April, and having run out of inventory at the end of April, and not having the inventory in May. If you have capacity constraints and you put incentives in place, the result is a lot of frustration. So I think what we have to do is figure out a very complex program of incentives that are phased with capacity. And we basically have to make it clear that those incentives will be there, possibly even escalating. You know, for example, if one is talking about fuel taxes as a negative incentive, which however will induce a great deal of purchasing. So one has to basically say okay, what do we do that lets the companies know it's safe to make the investments, and the customers know that it's going to be advantageous to buy the vehicles. But I think even, you know, if we do that, we're still looking at a very long timeframe. If you look at what happened with SUVs, the compound annual growth rate for SUVs from the time they got to, you know, some modest threshold, 2 or 3 million to the present, is approximately 9 percent per annum. The numbers I gave you were 15 percent per annum assumed. So it's an enormously difficult challenge. And I think it's worth tackling, but we have to tackle it from a realistic perspective.

MR. KRAMER: Alliance Bernstein projected two years ago that in 2030, 72 percent of the world's fleet and 85 percent of new cars would be hybrids and plug-in hybrids. That posits end of business as usual. And inspired by Jim Woolsey again, if the big -- can you imagine a situation where we wanted to do this and we said sorry, we couldn't do it, we couldn't scale up motors and batteries. I mean, you know, we can do that if we want to. Let's go back to 1943 when the President said to the auto companies, we're not building any more cars and trucks, we're going to build planes and tanks, and next year I want you to build 15 thousand planes. And they said, we can't do that, and they built four times as many in a year. We can do that.

MS. EILPERIN: Next question, go ahead.

QUESTIONER: Hi, Constantine Samaras, Carnegie Mellon. I research plug-in hybrid economics, policy, and lifecycle emissions. I'm glad that everybody wanted to talk about Alan's numbers, and that really emphasizes the importance of scale in this world, and the importance of designing policies to have plug-in hybrids' scale at the rate that we want. Now they talked a little bit about the supply push, but I wondered if the panel could talk a little bit about the market pull, and demand pull forces, that might be able to encourage plug-in hybrids to get the type of scale that we all want. And with respect to

Alan's study, sometimes in innovation and adoption, we see S-curve adoption where there's rapid adoption in the mid-time of the technology because people really like the stuff. Especially in respect to batteries, I wonder if you and Mary Ann could talk about is there a batter range or a battery bogey price that might get us to that type of disruptive technology from the demand side?

MR. REINERT: First of all I want to caution the assumption that I've heard discussed in this room that plug-in hybrids or electric technology -- which, by the way, offers the lowest energy density, which means the highest packaging effort of any fuel that we can use -- that there's somehow in technology a killer app. That's a broad assumption to make, and I want to make it clear that there's other competing forces here on plug-ins. There's lightweight cars that can be done, there's 60 mile, you know, eco-boost engines, other fuels that are non-carbonaceous fuels that are being looked at right now that can be liquid and be brought to market, and not ethanol, but other fuels. So when we look at that, we can't just assume that the marketplace -- that this car will compete, is 1. benign, is 2. that we don't have a worldwide recession going on and nobody wants to buy the cars, and is 3. it is market pulled from high gas prices. Having said all of that, the interesting part of

getting to the Prius and marketing that -- assuming that we have batteries and all that other stuff solved, and probably it's going to be a smaller battery and smaller electric range than everybody wants -- assuming we've gone all through that, the issue's going to be, and the thing that we found, is virile marketing, internet marketing, that's helped us so much. Some of bad press we got when people weren't getting the 60 miles per gallon in the Prius -- that was all handled not by Toyota -- I mean, I'd love to give my PR guys a lot credit for it -- but it was actually handled by the people who liked the car. And so it's that kind of virile marketing, that kind of internet kind of boost that I think would really help.

MS. EILPERIN: And so we only have three minutes left so if we could may be just take one last question that would be great.

QUESTIONER: Paul Scott from Plug-in America. This is for Mary Ann Wright. Mary Ann, a lot has been said by the OEMs that the batteries are not there yet. And I'd just like to know from you specifics on cycle life, calendar life, and the price per kilowatt hour of your batteries today, and in quantities of 100 thousand units going forward, and when can you get the ramp-up to those quantities?

MS. EILPERIN: Save the tough questions for the end! Go ahead Mary Ann.

MS. WRIGHT: Well, those are good questions, but I will be honest with you. I'm not in a position to answer those today, unless you want to come and buy 100 thousand from me, in which I have a private room in which we can meet!

No, your question is exactly right, and I will tell you this with as much candor as I can. We meet with our global customers all the time. And I will tell you a year ago, my discussions with my customers really focused around can the technology do it? Okay? That was the question, and then oh by the way, we're going to have to talk about cost. We've gotten to a point where we're ramping up our first manufacturing plant, and I will tell you, every single conversation that I have with our customer now has turned into how am I going to get these a whole lot cheaper? And I would be happy to share with you; we have put a cost roadmap in place, and I've shared it with my customers. I'm not in a position to just share it openly here, but we've put in a cost roadmap, for both HEVs and PHEVs, which we believe represent a significant quantity and affordable business model. And -- and it assumes a lot of scale, supplier diversity so that you don't have somebody holding you hostage over supply, and manufacturing infrastructure and development.

But we have been spending probably the last six to eight months on exactly that in terms of developing our business case. And I'm not trying to evade you, but it's just something from a competitive standpoint. Ric Fulop is in the crowd here. I'm not going to divulge that.

MS. EILPERIN: Okay. And I hope that all of you will join me in thanking just a really expert panel with a lot of knowledge.

MR. SANDALOW: Let me just say a word about what comes next. First, please take everything; don't leave anything here because this room is going to be completely redone for the evening banquet dinner. We have a reception starting at 6:00 next door, and a 7:00 banquet dinner here. Here's the warning. We have had an astounding turnout here, a lot more than we anticipated. The Fire Marshall absolutely will not let us seat everybody who we think might show up for the dinner. So, if you -- we'd love to have you for the dinner. Please come early, if you're really committed to getting a seat, reserve it, you know, grab a seat, and we'll just see what happens -- fight for it. Thanks very much everybody.

MR. HORTON: In my opinion, to a large degree because we've been living in a values crisis for the last thirty years or so, primarily because the dominant value during that period

of time has been market value with all other values coming in at a distant second in subject to that one value. And, you know, there have been plenty of examples of the price we've been paying for that, all the way from the tobacco hearings to Enron to global warming, even to the current struggles with the mortgage crisis. But that's just the tip of the iceberg; we've been feeling it throughout the fabric of our whole society. We even feel it in my business where there used to be a fairly healthy balance between art and commerce in the film business. And now there's not a whole lot of art left. As one friend of mine likes to say, it used to be the tail was wagging the dog, now there's no dog there. Terrorism, a war that doesn't seem to have an end, an economy where the gap between rich and poor is just turning into a chasm. I read recently that the CEO pay today is 600 times that of the average American worker, compared to 40 times back in 1980. And now even the environment, which, you know, its reliability, its sustainability, is something we took it for granted for long as time as existent, and suddenly even it's shaky. And not just in one section, but the whole thing. And I think people are getting, people are getting frustrated. People are -- there's a hopelessness about it right now.

And by now you're probably wondering what all of this gloominess has to do with this conference and while you're trying to eat. Wherever I would drive that car, a crowd would gather around, and they would ask questions. They would look at it. They would want to touch it. And, you know, of course, there was the expected novelty of it, there was an excitement about that, but there was something else on their faces. There was a look on their faces that was much more pronounced, which was -- there was a wonder and a hope that right there, right in front of them, was tangible evidence of the possible. Almost like an early rain promising the possibility of a downpour. The possibility that in spite of all the bad news and all the dire predictions that they're getting today, that in spite of the sluggishness of all of our systems, our business and governmental, that in spite of all of that, that may be our higher natures might prevail and that the human race may not only come up with the technology, but the will to push back. They might value life and quality of life enough to actually change it. And that for me, that symbolism and that message for me is as important if not more important than the technology itself.

So, in closing, I just want to commend you all. I really do; not only for your pragmatic work in doing what you

do, but for your relentlessness, your determination, your tireless optimism, because in that -- in the middle of that, is your message of hope and people are getting it, they’re feeling it. And I for one am truly grateful to you for it. So, thank you.