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PLUG-IN ELECTRIC VEHICLES 2008:

WHAT ROLE FOR WASHINGTON

Washington, D.C.

June 11-12, 2008

ANDERSON COURT REPORTING
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PLUGIN-2008/06/11-12

June 11, 2008

DINNER REMARKS

THE HONORABLE LAMAR ALEXANDER (R-Tenn.)
Chairman, Senate Republican Conference

THE HONORABLE JOHN DINGELL (D-Mich.)
Chairman, House Committee on Energy and Commerce

REMARKS AND CONVERSATION

FREDERICK W. SMITH
CEO and Founder, FedEx, and Co-Chair, Energy Security Leadership Council

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DINNER REMARKS

DAN REICHER: Could I have everyone's attention please? Could everyone sit down please? It is my great, great pleasure to introduce Senator Lamar Alexander who chairs the Senate Republican Conference and serves on committees overseeing clean air, highway, science, appropriation and the Tennessee Valley Authority.

The only Tennessean every popularly elected both as Governor and U.S. Senator. He has a very distinguished record in and out of Tennessee and most relevantly, he recently issued seven grand challenges that need to be addressed to secure our energy future. At the top of his list -- plug-in vehicles. It is my great pleasure to introduce Senator Lamar Alexander.

SENATOR ALEXANDER: Thank you. Thank you very much. Well, first I want to congratulate Brookings and Google for hosting this. I understand it's been a terrific day. Congressman Dingell, Chairman Dingell is coming, and he has an affliction that all of us have in the Senate and the House. He has votes. So when he comes, I want to make sure you have a chance to hear him and I'll wind down. But I wanted to drop by and I appreciate the invitation just to tell you how important it is, what you're doing.

Let me start with a story. Some of you may remember how Ross Perot first made his money. It was in the 1960s in Dallas and Mr. Perot noticed that the banks were locking their doors at five o'clock and they locked their big new computers at the same time. So he went to the banks and he said may I buy your unused computer time at night? Then he came to states like Tennessee, before I was governor, and said I'd like to make a contract to manage your Medicaid data at a cheaper cost. So the banks made a little money. The states saved a little bit of money. And Perot made a billion dollars.

Now, the analogy of that today is the unused electric capacity that we have in the United States at night. The Tennessee Valley Authority, where I live in Tennessee, is the largest public utility. It produces about three percent of all the electricity in the United States. Its managers tell me that at night TVA has the equivalent of about seven to eight nuclear power plants worth of unused electric capacity on most nights. Now if you stop and think about that, what that suggests to me is that in our region probably the most important unused asset that we have is that amount of electric capacity.

So on Monday, Congressman Bud Cramer and I --

he's a Democrat, I'm a Republican -- we're co-chairmen of the TVA Congressional Caucus, are hosting in Nashville a hearing, a Congressional hearing on our plug-in electric vehicles -- one of the answers to high gas prices. We'll have 11 vehicles there. Many of your companies will be represented there and it will be a way to help make the public more aware of these things.

As was mentioned, I went to the Oak Ridge National Laboratory about four weeks ago and I suggested to about 200 scientists there that we needed a new Manhattan project for clean energy independence -- that that would make a lot more sense than dueling poster boards on the United States Senate floor about who did what to whom. And I said we should start by doing the things we know how to do which would be exploration off shore, new nuclear power plants -- but then we ought to pick seven grand challenges of things we don't yet quite know how to do and give the same kind of focus to that that we gave in World War II to splitting the atom and building a bomb.

That was a tremendous effort at that time. It drafted some of the most important companies. It spent $16 billion in today's dollars. It had the best scientists in the world. It had an Army Corp of Engineers General in

charge and it had a focus. And among the grand challenges I suggested, were three already picked by the National Institutes of Engineering. One of those is carbon recapture. One of those is help make solar power more competitive cost-wise with fossil fuels. But one I picked was help make electric vehicles commonplace within five years.

I want to congratulate Mr. Sandalow for his work at Brookings on this and in my brief comments tonight, I want to try to answer the question what should the Federal role be? If I were to suggest a criteria or two, these are the things I think we have to watch out for when the Federal Government -- which as big as it is, is relatively small in our big economy -- begins to get involved in the marketplace. One is to watch out for the rule of unintended consequences.

For example, the effect of support for corn ethanol on food prices -- maybe it's exaggerated, but our focus, we didn't think about that as clearly, and our focus I believe ought to be on advanced biofuels which would include crops that we don't eat. I think we have to watch out for -- we're not Japan and we don't have industrial policy in the way that they do. And picking winners and

losers in the marketplace doesn't always work right. Support for cellulosic ethanol, which I think is very promising, might have some effect on the forests of America. It might drive up paper prices. It might put into place a subsidy that interferes with an algae solution to carbon capture because it doesn't have the same kind of support.

And then, as we've seen with support for wind, which is now well developed, a subsidy that we put in in 1992, grows and grows and stays in office and begins to squeeze the money out for other renewables or other promising technologies. So keeping that in mind, here, in quick order, are some of the things I think the Federal Government could appropriately do and I've listed them in the order that I think are probably most appropriate in terms of Federal interference with the free market. And if someone will let me know when Chairman Dingell comes, I'll be glad to make sure that he's not late to his vote and that you have a chance to hear him.

First, I think one thing that we could do, we've already done. And that is the fuel efficiency standards last year. The Oak Ridge National Laboratory scientists told me that was the most important thing we could do.

It's a 40 percent increase. You know all about it. But, the advantage to that is that doesn't pick winners and losers. It just says this is the standard. If you want to engineer your conventional -- your internal combustion engine -- so that it gets 50 or 60 or 70 miles a gallon, or if you want to add some form of ethanol and take it on up a little further, or if you want a pure electric car and try for 100, that's up to you, but we'll set the standard.

We won't pick the technology. So fuel efficiency is done, and we will be considering further efforts at fuel efficiency standards as time goes on. Second, a low carbon fuel standard I think makes a lot of sense for our country in dealing with carbon. I'm not -- I support cap in trade for power plants. I'm not ready to support it for the whole economy. I'd rather put caps on power plants and a low carbon fuel standard on fuel. Again, that is the kind of Government action that doesn't pick and choose winners. A third way that is beginning to pick and choose a winner, but I think is very appropriate for us to do, would be for the federal government to purchase, to put out a bid and say that of the 65,000 non-trucks that the government buys each year, a certain percentage of them will be electric vehicles and see what kind of bids come in at what cost and

give that a way to get started.

Next would be battery research. Batteries, lithium (inaudible) batteries are very important and the question would be how should the government get involved in it without interfering with what private businesses are doing. One way, of course, to do it is through the new Energy DARPA that was enacted last year, like the DARPA in the Defense Department or through our national laboratories, some of which are already deeply involved in that.

A fifth thing that would be important would be accelerated depreciation for smart meters. If you're going to put together an electric car with night time electricity, it helps if the consumer understands the smart meter. I drove one of A123's cars today. He told me -- the driver told me -- that he gave it charge for less than a dollar at night and by doing that, with his basic plug-in Prius, he took his car from 40 or 50 miles a gallon, to over 100 miles a gallon. But if we can say to Americans, TVA can say plug-in at night, fill up your charge for a dollar or two instead of 70 or 80 or 90 dollars, and we'll charge you a little more between four o'clock and ten o'clock, we might be able to electrify a big part of our

workforce of our fleet without building new power plants.

Next, carbon capture. Carbon capture is essential if we're going to continue to burn coal, which if we're going to electrify the fleet, we must do in the near term. We all have a vision of an energy future that doesn't burn so much fossil fuel, but that is some way off and we need a bridge to that future. And if we can find a way to deal with carbon -- we already know how to deal with sulfur, nitrogen and mercury -- then we can use our coal and we can still be more independent in terms of our energy sources. Finding ways to deal with carbon capture -- not just putting it in the ground, but algae solutions or other chemical solutions that might develop is essential, it seems to me, if we're serious about electrifying the fleet to any great extent.

And then in terms of coal plants, we might as well bite the bullet and say on their fortieth birthday, all the old dirty coal plants ought to have to meet the higher standards for clean air and -- but use them, but use them and helpfully show the rest of the world how to have a coal plant that doesn't pollute. Finally, I know many of you support the idea of tax credit. Senator Hatch has a bill like that that has good support in the Senate. That's

a little more intrusive, I would say, with tax credits.

What we ought to try to do is make sure that we think of tax credits or direct government support for technology as something we should do for a limited period of time and not as a permanent subsidy. And then there are the questions of the battery guarantees. We've had some discussion about that. Mr. Sandalow has talked about that in his book. It's an interesting idea as well. It's a little more complicated for the government to be involved. Now there are a number of suggestions for plug-in electric vehicles, but my main message tonight is that this is a time when we ought to be working together.

I'm working with Bart Gordon, the House Science Committee Chairman. He's a Democrat. I'm a Republican. Jeff Bingaman, the Senate Energy Committee Chairman. Pete Dominici. What we're trying to do is see if we can put a consensus together of what you call at a moon shot or a Manhattan project -- some way, with the advice of scientists, to say what grand challenges should we undertake in order to put ourselves within the next five years firmly on a path to clean energy independence. And if we can do that by this fall, then perhaps we can say to the new President and the new Congress let's do that, let's

do that. And I'm sure that it would do that plug-in electric vehicles will continue to be at the top of my list. Thank you very much.

DAVID SANDALOW: Well, if ever there was a man in this town who needed no introduction, it is Chairman John Dingell who we are honored to have with us here tonight. John Dingell is the longest serving member of the U.S. House of Representatives. He is actually the second longest serving member in the history of the House of Representatives. He is the Chairman -- he is the Chairman, of course, of the House Energy and Commerce Committee. He has, in more than five decades of legislating -- written a remarkable record of laws on a variety of issues including on energy and environmental issues that we're discussing tonight -- the Clean Air Act, NEPA, the Endangered Species Act -- and I am delighted to say is my hometown Congressman, comes -- represents Washinaw County, Monroe County and from the great state of Michigan, ladies and gentlemen, John Dingell.

SENATOR DINGELL: I have a nasty pinched nerve is the reason why I need these darn things. First, for that gracious welcome, thank you all. Second, David, thank you for your very gracious and kind introduction. I'm grateful

to all of you for your kindness and I hope that when I'm done speaking you will not be disappointed. In any event, we're here to talk about things of great importance to the country. And I want to thank Brookings Institution and Google.org for providing a forum where we can continue to expand this important discussion on a matter of great concern to our people.

First, I want to recognize Maria Thompson, President and CEO of TJ Technologies. Maria, it's good to see you back here again. TJ Technologies has taken a lead role in developing lithium battery technology which is critical to the development of the transportation sector in ways that we want, including the development of the Chevy Volt. Last but not least, TJ Technologies is located in the 15th Congressional District which always makes me feel good. I'm very pleased to be part of the conversation tonight and I'm delighted to share the stage with my distinguished colleague and friend Senator Alexander.

As always, I look forward to seeing friends and I must confess I'm not disappointed. I'm heartened to see the wealth of experience and expertise that has gathered here tonight to talk about something which is very important -- plug-in hybrid vehicles. And as we discuss the future, I

hope that we can recognize our limits on the power of prophecy. When the very first administrator of the Energy Information Administration, Lincoln Moses, appeared early in his tenure before a Senate hearing, one of the Senators became frustrated with the careful responses and caveats that Moses used to condition EIA's projections.

The Senator demanded that Moses skip the hypotheses and get down and just give him the facts about the future. Moses responded in what I think is a very good way. He said, Senator, there are no facts about the future. I think we do have some facts in hand concerning the present and we have hopes about the future. First fact, our dependence on oil is a matter of major national security concern. Now, we import less oil from the Middle East than 30 years ago, but the world still relies on oil extracted from dangerous and unstable parts of the world. And our military is regrettably and unfortunately placed in the position of being the guarantor of the world's energy supply.

Two, the demand for oil is increasing and while there may be a temporary slackening of demand, or while the up and down movement of the price structure may go down a little bit, it is very clear that over the long term it

will only point up with China, India and the rest of the undeveloped world driving, so to speak, the way.

Three, our petroleum supplies and petroleum refineries are vulnerable to natural disasters and accidents. We only need look back a few years to see what Hurricane Katrina and Rita did to impact upon the price structure of oil and energy in this nation. Four, we must act upon climate change and upon our vulnerability to oil and energy supply disruptions.

These four facts drive us to important conclusions. We need to consume less oil and we need to do so more efficiently. We need to find new technologies that don't rely on oil and we need to find alternatives and substitutes for oil. Now there are ways in which we can achieve these goals. We think we know some of them. We hope that we find and develop more. The energy legislation that Congress has passed last year and that the President signed into law requires automobile makers to improve the fuel economy of the fleets by 40 percent -- 40 percent over the next 12 years. Now that's an imperfect tool.

And, indeed, as we find, it isn't the best mechanism for achieving some of the nation's goals. To be precise, corporate average fuel economy which uses the

metric of miles per gallon is far from the best way to manage or reduce carbon emissions and indeed it is only a part of what it is we must do. From a policy perspective, let's ask one question that might help us understand where we are. First, which is better -- a car that gets 40 miles per gallon running from Middle Eastern oil or a car that gets 25 miles per gallon running on a domestically produced carbon neutral biofuel?

And we should then begin to craft our energy policy response in a way which considers that kind of question. I hope we can develop a better system in the context of comprehensive climate change legislation upon which our committee is working and upon which the Senate, as you will recall was working until just a little while back. And I think that we ought to understand that perhaps a low carbon fuel standard to account for what goes in the fuel tank is as important as what comes out.

But I would also like to observe that in promoting fuel efficiency, the market can be a much more strong and a much more effective force than any regulation by law. And if you look at how the automobile market has changed since gasoline hit $4 a gallon, you will understand that the market is a powerful tool to address these

questions -- much more so than the statutes enacted by humble men. I've been around long enough to have achieved the burden of memory. In 1976, gas was selling for 60 cents a gallon. It had just gone from 38 cents a gallon. In 1979, when the Shah of Iran fell, gas prices began a long, inexorable and continuing price increase.

In 1981, Americans were shocked when domestic gasoline prices exceeded a dollar per gallon for the first time. Unfortunately, that year the average gasoline price would reach $1.35 per gallon. How did the nation respond? Between model years '79 and '80, corporate average fuel economy jumped by three miles per gallon -- a 15 percent increase in only one year. It wasn't because of the government requirements. It was because consumers were induced by the market to go out and buy more efficient vehicles.

Last year, for the first time, gasoline prices, adjusted for inflation, exceeded what Americans paid in 1981. And, as noted, the consumer is responding -- $4 a gallon focuses the mind wonderfully. Last month marked the first month since December 1992 that a car, not a truck, was the country's top selling vehicle. The cars we're buying today are more fuel efficiency. There is now a

shortage of batteries for today's hybrid cars and indeed the wait lists for the fuel efficient vehicles is increasing while the difficulty in giving away the fuel inefficient vehicles is making real problems for the industry.

We are beginning to look at mass transit and indeed Americans are taking more mass transit and driving less. In fact, Americans drove 11 billion fewer miles in March compared to a year earlier. We all recognize that there is real distress in my home state of Michigan -- plants closing, workers laid off and production is being curtailed with all kinds of consequences to our economy and to our society. Many people blame the automobile manufacturers for these woes and I won't deny that they've made their share of mistakes. But those who are most critical of the auto industry often forget one thing.

For many years, in order to stay in business, our automobile manufacturers have given the American public exactly what they wanted. As was said in a recent column by Walt Kelly, the legendary author of the Pogo comic strip, we have met the enemy, and he is us. No one ever has forced the American consumer to buy an SUV. What pulled the American consumer towards larger, less efficient

vehicles can be summed up in two words -- cheap gas. And the consequences were that the natural instincts of Americans to drive in more prestigious, larger, more comfortable vehicles took over. There is going to be an adjustment.

What has happened is behind us. But what is now before us is to confront reality and it has significantly impacted the effort of American automobile makers and automobile workers and manufacturers around the world to improve fuel economy. A critical part of the race is going to be development of electric vehicles and plug-in hybrids. Like many of you, I was pleased with last week's announcement that the Chevy Volt is on track for a 2010 launch. Good news.

But there are lots of things that we need to do and we must do to promote the development and deployment of this and other new technologies -- not the least of which is to note that the solution of our energy problems lies not in one technology, but in a broad mix of many. We also have to recognize our need to encourage this new technology. Last year, Majority Leader Hoyer and I wrote a bill and a law to encourage this new technology. But we do have limits. Congress can pass any law it wants, but we

can't repeal two very important laws -- the law of supply and demand and the laws of physics -- to which we are committed to obey whether we like it or not.

If the Chevy Volt proves -- and I hope it does -- to be commercially viable and technologically feasible, meaning that its cost is not astronomical and its batteries are workable, it won't be because elected officials or bureaucrats have done something special. It will be because of our talented engineers and scientists and that they have made something which appeals to the American consuming public. But here again we must learn from our past. The idea of plug-in hybrids is not new.

As *Atlantic Monthly* reports in its current issue, a bright young engineer at General Motors came up with idea in the 1990s. But at the same time the company, like all of the auto makers -- and I hope you're listening to this -- was struggling on how to meet a mandate Congress placed upon that company and the industry in the 1990 Clean Air Act Amendments. The Amendment, or rather the language of the legislation, called for zero emission vehicles and a plug-in hybrid using small engines to generate electricity was not a zero emission vehicle, although it was probably better in terms of meeting the needs, desires and demands

of the American consuming public -- you can feel free to interrupt with applause any time you're (inaudible).

The company needed to devote its resources to a zero emission vehicle, which I might note it ultimately developed, but which I think we could all agree did not meet our needs as nicely or as well as does this kind of vehicle that we now discuss. With the zero emission mandate, Congress effectively legislated that the perfect should be the enemy of good. And that's a mistake I don't want to replicate again. If the Chevy Volt does prove viable -- and I hope and I think that it does and will -- motor vehicles will become the first sector to solve its carbon problem.

In fact today, though admittedly flawed, the café system is going to be something which is going to continue to regulate the industry and it will be the only industry that operates under a carbon constraint. As for the other sectors of our economy that emit greenhouse gases, let me say this -- we're going to get you next. In that vein, Energy and Commerce Committee is working to prepare legislation to establish an economy-wide program to limit greenhouse gas emissions in the United States.

The cornerstone of that program will probably be

a cap and trade system. As we cap and trade and as we craft this legislation, we're going to give careful consideration as to how the electric utility industry is going to be effected. And I want to say parenthetically, I'm telling my friends in industry -- all industries -- we're going to write a bill -- when we get to it and when we get an understanding of all the questions that we confront if we write this -- that will, first of all, be a bill that industry will hate. But I'm telling industry, industry we're going to try and see to it that if we do this, it's a bill with which you can live because the importance of this is the difference between a viable economy and a descent standard of living and a way of life for our people and something far worse.

The industry -- industry faces the daunting challenge of maintaining reliability and affordability while at the same time offering a commodity that moves with the speed of light -- I'm talking about the electrical utility industry -- and which is impossible to store in any meaningful way, at least until there is a widespread development of hybrid electric vehicles. We are told that electric cars could, along with smart grid technology, allow electric utilities to use car batteries to store

electricity in ways that help them meet critical peak loads and avoid the current astronomical costs of critical peak power. Even more exciting, we could fill up the batteries in these cars at a cost equivalent of 75 cents per gallon of gasoline. There would also be a net reduction in carbon dioxide emission if cars shift to a power system bottomed on the use of electricity.

So clearly the electric utility industry has reason to be as excited about the emergence of hydrogen, rather of hybrid electric vehicles as the transportation industry. As we move forward on the legislative process, I hope the electric utility industry will be engaged as the transportation industry has been to this point. Developing climate change legislation that is comprehensive, reasonable and effective is no small challenge.

You will note that the Senate had an opportunity to learn this hard lesson this week. Already the Committee on Energy and Commerce has had 20 hearings on the issue during this Congressional session. We have also scheduled two more hearings on legislation now pending. We have heard from policy experts, environmental advocates and industry leaders. As part of the legislative process, we are also issuing a series of white papers that identify

issues on which further information and discussion is desirable. And I would tell you that I would appreciate anyone here who would have a look at these papers. We've been criticized on them because it was said, Dingell, you have not come forward with these papers with a solution and we have said we are not presenting a solution. We are seeking discussion to lead us to a consensus and to a way of working together towards the resolution of perhaps the largest single environmental problem that we confront in this nation today.

This month, as mentioned, we're going to hold hearings on bills pending. We will include in that the Lieberman-Warner Bill as well as others. These hearings will be conducted in a way to examine the strengths, weaknesses and practicality of pending proposals and to enable us to prepare our efforts to move forward with a concrete legislative conclusion. I want to end by saying how pleased I am that you're holding this conference. I want to tell you how flattered I am that you would have me here to speak to you tonight. I want you to know that electrical vehicles and plug-in hybrids have the potential to revolutionize not only the American automobile industry, but our entire energy mix.

At the same time, however, we're going to have to consider not only the advantages of electric cars and plug-in hybrids, but we're also going to have to keep in mind the source of electricity for these vehicles. And I would urge you to ask yourself are we going to better our self significantly by moving from gasoline to coal-fired plants, or are we going to have to use new things such as again returning to the development of nuclear power to provide us with the resources we need to make this part of our energy and transportation system in fact work.

If every new vehicle sold in the next decade is electric, we will confront a situation where we're going to have to ask have we simply pushed the source of carbon emissions upstream. How will we meet then this new demand for electricity? Will we burn more coal? Will carbon capture and sequestration be ready? And will we, as I have mentioned, find it useful or necessary to return to nuclear power? All of these ideas will require honest and open and frank discussion. And they require us to have an honest willingness to come to a consensus because they're going to affect the quality of life, the future, the hopes, the dreams and expectation of every American. But I can say this with more than a little certainty -- none of these

things will be a reality and there will be no legislation enacted which will really address our national problems until we have a new administration that brings real vision and real vigor and real leadership and fresh thinking to our energy policy debate.

Like many of you, I am excited about that and I hope that this new administration which lies before us will portend a real and a vigorous approach and real and vigorous leadership to our desire to address a major problem and I'm sure that everyone in this room, including this speaker to you, are anxious not only to see that event occur, but very frankly also to be a participant in the undertaking. Thank you very much.

(Recess)

REMARKS AND CONVERSATION

MR. SANDALOW: Well, hello everyone. I hope you are enjoying your meals. I hope you are enjoying your meals, and we have a very special dessert to offer you tonight. Thank you everybody, I hope you are enjoying your meals.

And I am delighted to welcome to the stage, yet another extraordinary leader of American business. Fred Smith was a Marine in Vietnam and came home and went to

Yale, and he had an idea. And he turned that idea into a little company called Federal Express.

In doing that, Fred Smith didn't just create a business. He created an industry. Before Fred Smith, there was no such thing as reliable overnight delivery service, but Fred Smith made that happen. And he has built FedEx into an extraordinary company, into an extraordinary brand, but he has done much more.

Not only has he built this amazing company, but he has taken on leadership on the issue of oil dependence and in a quite remarkable way. He is Co-chair along with General P.X. Kelley of Securing America's Energy Future, and the Energy Security Leadership Council. Whose work was absolutely instrumental to the congressional success on energy efficiency and fuel savings over the course of the past year. And it's because of really Fred Smith's tireless work that some of those really important legislative victories happened.

So we're thrilled to have him here tonight. Here's a –- Fred is going to talk for a few minutes, then we're going to have a dialoge for a few minutes on stage and then he is delighted to take questions from the crowd, eager to do that. We have a microphone over here, and so if

you want to ask a question, as we're kind of winding up our dialogue, please go stand at the mic and delighted to have a conversation with the room. So, ladies and gentlemen; Fred Smith.

(Applause)

MR. SMITH: Well, thank you very much David. I appreciate those kind remarks.

One clarification, I went to Yale first, then I went in the Marine Corp., and kindly David did not bring up the subject of the poor grade in his view I got, for the term paper I wrote about FedEx when I was at Yale, in the mid 1960's.

So, I do always in front of an audience like this, erudite and familiar with urban legends like that, provide a clarification about that term paper because I'm quite sensitive about it. And I want everyone to know that I was very happy to get a C grade. That was a very good grade for me indeed. So, I appreciate your not bringing it up.

All kidding aside let me congratulate and commend everyone in this audience for the important work you're doing in this important complication here.

Google, one of my favorite companies, I applaud the leadership they're demonstrating, in this particular sector.

Now let me do two or three things very quickly, and then listen to my drill instructor over here, and sit down and shut up and take some questions.

Let me tell you a little about FedEx, and why we're interested in energy. FedEx has become, from its start up some 35 plus years ago, a very large transportation and business services entity. Revenues almost $40 billion. We operate 700 aircraft, almost 80,000 vehicles, we serve 200 and I think at last count 222 countries and territories around the world. It's the largest transportation system, ever put on the planet.

We burn a lot of fuel. Not nearly as much as the passenger airlines. Because our business is not one that depends on frequency. You don't care how many times a day we go from New York to Washington, or to L.A. So, our airplanes tend to get bigger and fatter and fortunately for us, over time, much more fuel-efficient. And we also, as I mentioned a moment ago, operate about 80,000 vehicles. And between that fleet of 700 airplanes, and 80,000 vehicles,

we burn about one and a quarter billion gallons of aviation fuel. And hundreds and thousands of gallons of diesel fuel.

So, I'm interested in energy and conservation for a number of reasons. One, I'm interested in it, because I'm a citizen of the planet, and I think it's the appropriate thing to do.

But I can assure you there is a lot of self-interest involved here. And we've tried to be as steely eyed and objective and as quantitative as we could be on this matter. And in that vein when Robbie Diamond of SAFE; the umbrella organization that spawned The Security Leadership Counsel came and asked if I would participate, in Co-chair it along with General Kelley I was happy to do so.

One, because of the outstanding scholarship and analysis that SAFE had done on this particular issue. And demonstrated through it's now famous oil shockwave simulations. The profound economic and security risk, as Chairman Dingell mentioned a moment ago, that would face us in the future if we didn't have to address this. And this is even before we get into the environmental considerations. It seemed to me to be an important endeavor. And so, I signed on.

For those of you who don't know the ESLC is a group of CEO's of transportation generally companies, or energy intensive companies. Like FedEx; UPS; Southwest Airlines; Royal Caribbean Cruise Lines, and so forth. And about 10 four star Admirals and Generals that had the responsibility again as Chairman Dingell mentioned, of protecting this vast oil network, that supplies our daily needs.

And we developed a recommendation to the Congress that had as its bedrock foundation, three interrelated recommendations.

The first of which, as was mentioned that the United States, would reinstitute for the first time in many years, new fuel efficiency standards, but in a different manner. Basing them, not on averages, but on attributes: category attributes.

Second, that the country would promote and otherwise incent people to produce alternative bio-fuels to the extent that it was technologically and economically feasible to do so.

And third, which may not be popular in this particular audience, to increase domestic petroleum production in Alaska and the Outer Continental Shelf to

displace imported oil as we move away from a petroleum based society, in order to lower the balance of payments, the deficit that we're currently seeing, to minimize the potential for more conflict like we've seen so graphically in the Middle East.

Now, as you know, the legislation passed last December. The grand compromise that we recommended did not take place. But better to have I suppose two loaves, then no loaves at all, even if you can't get three. And we did get the new Fuel Efficiency Standards. Which is you might have gotten a little flavor there weren't popular in every corner of the country. Certainly some of our automotive customers let me know that very directly. But it seemed to us that this was such an urgent problem, that the consequences of that had to be put aside for the greater good. And I do think that the institution of these Fuel Efficiency Standards; whether directly or indirectly, will have profound effects on our becoming more energy efficient, as a society.

I don't think it's by accident, that within 90 days of the passage of that legislation a plethora of announcements were made about new electric, and plug-in electric hybrid vehicles. Somebody had a lot of work going

on, and a lot of places that wasn't exactly getting a lot of press releases.

So, I believe that has appropriately incented automotive manufactures everyplace to bring these very important vehicles on the road.

And let me just say a couple of things about our Energy Efficiency Initiatives, and then I'll sit down and do what David told me to do.

We have for a long time been trying to improve our energy footprint at FedEx. We've made multi-billion dollar investments in new more fuel-efficient airplanes. Our new 777s will come in will be 25 to 30 percent more fuel-efficient then the MD-11s.

And in fact aviation has an extraordinary record of improving its fuel-efficiency over the last 30 years. If the rest of society had, had the same relative improvement, we wouldn't be sitting here --quite frankly -- and having this conference.

And the other thing we did along with the Environmental Defense Fund and Eaton Corporation is we put together the first commercial hybrid vehicles. And these vehicles have about 90 percent less emissions than the

conventional diesel powered trucks that they replaced. They have about 50 percent more fuel-efficiency.

The problem was because the only people that were buying them were FedEx, is the capital cost of the vehicle was about $90,000 as opposed to the capital cost of a regular diesel of the same size at about $55,000 a 700 cubic foot pick up and delivery vehicle.

But now with diesel fuel not far off $4.50, guess what the ROI that you can achieve by going to a hybrid pick up and delivery vehicles, and hopefully soon; plug in all electric or hybrid electric vehicles offers stupendous returns on investment, and all of the environmental benefits and profit and loss benefits you get, not for free but on a cost effective basis.

So we are completely committed at FedEx with the tens of thousands of vehicles that we buy to moving to a new paradigm, which is directly on point with the focus of this conference.

And we look forward to working with many of you and the ESLC, I can promise you will promote to the maximum extent that any credibility we might have, with any constituency to the maximum of our ability.

The movement towards this type of technology that moves short-haul transportation, into the electrified realm. And I hope we'll see in a few years, a much less serious economic and national security challenge because of the good work that's being done by this group. Look forward now to taking any questions you might have.

(Applause)

MR. SANDALOW: Thank you very much. Thank you, thanks a lot folks for those remarks, and for all the leadership. I want to start by asking about transformation. Because there are a lot of people in this audience that would like to change the world.

And we heard this afternoon -- I think -- a lot of good reasons to change the world along the lines of electrifying transportation. But we also heard a lot about the challenges of doing that, and we're talking about changing cars in ways that haven't been done ever, with changing powertrains. We're talking –- the speaker said that we have adequate electric generating capacity, but it may take significant changes in the way utilities do business with time of day metering, but –- and other types of changes.

You have changed the world. And when you look out at the challenge that's involved with electric vehicles, and the types of changes, that are needed to be done -- the kind of big picture transformation here. Do you have any thoughts for an audience like this about how to address a challenge like that?

MR. SMITH: Well, I think in my career day that I've watched many, many innovations and concepts, which most everybody agrees are good to struggle, and many times there are casualties along the way. And all of a sudden, something happens, and to borrow the quote of the famous book from about the Silicone Valley or the IT thing. "The product crosses the chasm" and all the sudden it goes up on that fantastic S-curve and what seemed to be strange, different, it becomes acceptable.

And I really think that that's where the electrification of short haul at least transportation is. If you remember, I've been through this four times. FedEx was almost killed in its cradle, because of the first oil embargo. Then through '79 and '80, then through the '90-'91 a period, and now this in 2000 really four through 2008.

And there's a very big difference today. And that is that the technology that's available, both in the

automotive and on the battery side of the house, is robust. You're no longer talking about experimental things, and battery technology that is really not viable.

It's as best I can tell at this point and time, an issue of scale. And we were talking at the table here. We would have no compunction what so ever to buy thousands of all electric plug-in pickup and delivery vehicles. They originate and terminate at the same location. The management of the battery issues and all is really quite simple to us.

So, I think that you see a lot of people in that point of view.

And the second thing: on the production side. There is a huge amount of industrial, intellectual capital going towards this business problem now. Some in this audience. Lots of places around the world. So I do think that it's a lot different than it was in '79 and '90 because you're talking about real technology that can be brought to market at scale, and have a incredible effect on planet change, but reducing CO2 emissions, and by improving our dependence on imported petroleum.

Now you get to the upstream issue and that's a different area, but I do think there's hope on the horizon there too.

MR. SANDALOW: So you mentioned up at the podium, something about doing what David tells you to do. And I like the sound of that. So, with that in mind –-

MR. SMITH: Only for tonight, David.

MR. SANDALOW: Well, okay. With that in mind, let's talk about FedEx procurement practices.

MR. SMITH: Okay.

MR. SANDALOW: I mean you started to get into it just a moment ago. But, you're obviously –- you're keen to work on this, and let's say you decided you wanted to buy 5000 and 10,000 plug-in hybrid trucks. To do that type of short haul distribution you're talking about.

MR. SMITH: Or all plug-in electrics, it doesn't have to necessarily hybrid.

MR. SANDALOW: Thank you. Thank you. I stand corrected. So what does that look like from your standpoint? What would be the constraints in getting it done? And how could people in this audience help you overcome those constraints?

MR. SMITH: Make us an offer. We would –- if we had a credible manufacturer, that could produce at scale. Plug-in all electrics or hybrid electrics. We would buy them. I mentioned the joint venture we have. The partnership we have with the Environmental Defense Fund, and Eaton, and FedEx. And we now have 300 of them out there. We've gone over two million miles, and that's a regular hybrid.

But again, it seems to me that the plug-in is where you need to go. The recharge cycles are getting better and better. The batteries are getting better and better. As most of you know who are the automotive side, if you go to all electric the different –- the freedom in design parameters are fantastic. It particularly lends itself to commercial vehicles. So, what we need is some manufacturer that wants to get into this space, and we would go out and make a substantial commitment if we could get those kinds of vehicles.

Now, we run a business that depends on reliability. I mean from the get go. FedEx was all about absolutely positively. So, the one thing we're not going to do is to put our customers interests at risk. And we're not going to do something that makes us uncompetitive by paying

two and three times for a unit of capacity, that a competitor can produce that's not as sensitive, if you will or is interested in this area.

But, that's why I made the point about "crossing the chasm". I don't think you have to make those compromises anymore. I believe that with the lithium ion battery technology and other things that are out there. And what's been learned about this in the last few years, it is now possible to build these types of vehicles on a commercial scale level.

(Applause)

MR. SANDALOW: I've got one more question for you, then if anybody wants to go to the microphone. We'd love to take questions from the crowd. So how about policies? We're here in Washington. We're here at this conference to talk about the types of policies that Washington should implement to help start this revolution. Yesterday on the floor at the Senate, we saw really pretty stark partisan divisions on this whole energy area.

Specifically with regard to plug-in electric vehicles: Are there bi-partisan approaches that you think could win the day? Are there any approaches that you think

we should be taking forth to Capital Hill this year and beyond in order to make this revolution come quicker?

MR. SMITH: Well, we were talking at dinner down here. This might surprise you. I'm not an expert on Cap and Trade, and I gave you the scope –- scale of our consumption of petroleum based products. But if I were a policy czar, or whatever wizard that had the capability to come and put a policy in place. My belief is that the best policy would be a carbon tax. Because it's simple, it's efficient, it doesn't get into the gaming that would necessarily go on, and I understand in general and I checked it before I came up here with a very smart lady.

I understand the rationale for Cap and Trade, but I've been around Washington long enough to know, when you have something that is many moving parts, you have a real opportunity to have a lot of unintended consequences.

(Applause)

MR. SMITH: So, a carbon tax to me; gradually phased in. So everybody knew what the name of the game was. This year it's X, next year it's X-plus, one thing another. Then this is most important. Those monies that are collected by the carbon tax don't go into anybody's agency. What they do is go straight back to reduce carbon

consumption, through incentives or production subsidies or whatever the case may be.

Or, if you didn't want to do that, just give it back to people in reduces FICA taxes. So you tax the bad, the things that are creating the national security risk, the economic risk that safe and or a shockwave. Shows so shockingly we're on the horizon and now my goodness we're way beyond what even our worse fears are.

And I think there's a lot of empirical evidence. I believe it was Denmark or one of the –- you know, when you have the money straight from the carbon side to reducing the carbon, it works pretty well. It's when you get in to all of the political log rolling that I'm afraid of Cap and Trade.

(Applause)

MR. SANDALOW: I have just one follow up and then I want to go to Professor Frank. Many, many members of Congress have signed no tax increase pledges. Which limit their flexibility to do what you just suggested. I mean is it safe –- would you like to tell them in your view at least, the type of rules you just made should be viewed as an exemption or shouldn't be prohibited by their no tax pledge?

MR. SMITH: Well, the biggest mantra on the Democratic side of the house is income and equality. And as someone who employs almost 300,000 people I can tell that employment taxes are a disincentive to employing people. And in fact corporate taxes are a disincentive to employing people. All of the studies show that if corporate taxes go down, and the United States is not competitive in this area.

70 percent of the income goes to the wage earners in that corporation. Now you can get all up in arms because there are some fat cats that you know benefit too, but the majority of it goes to the wage force.

Now with that understanding, there's a relatively simple solution to your problem. That's why I put point B there. Just take the tax increase on carbon, which is bad and take it directly into people's pocketbooks into reducing FICA. Take it from the IRS and put into Social Security.

So you achieve what you're trying to do, which is less carbon intensive society, and you reward work by making you know the taxes on employment less. It's very straightforward.

(Applause)

MR. SANDALOW: Please.

PROFESSOR FRANK: My turn?

MR. SANDALOW: Your turn, thank you.

PROFESSOR FRANK: Thanks. By the way, FedEx now has hybrids from Eaton and I know it's a good program, and of course it's saving fuel. But the main question is; are you going to let a RFP out for a plug-in hybrid? If you do, I'd like to know about it.

MR. SMITH: Well, let me ask you this much –- you know it takes two to tango here. Do most of the people here that know what their talking about, believe that industry could produce plug-in hybrid pick up and delivery vehicles now at scale at a production competitive price? I mean do we? Well, I'm not being rhetorical, I'm asking. I'm asking the question. Do you think so? Then we might do that.

PROFESSOR FRANK: Let's put it this way. I've been building plug-in hybrids for almost 15 years. And I've built pick up trucks and I've got a medium duty FedEx truck, essentially, for another customer on the works right now.

And we're only a university. And it could be done. It could have been done five years ago ten years ago.

What Eaton has done is a good start, but it's got to go to the next step and that is –- .

MR. SMITH: Well we might just do that, I mean if we can ascertain that people can actually meet that requirement, that might be an excellent suggestion Professor. For us just to come out with an RFP.

PROFESSOR FRANK: That's what I'd like to see.

MR. SMITH: Yes, okay. We'll do that I promise.

PROFESSOR FRANK: If you do that, we'll bid on it.

MR. SANDLOW: If you can identify yourself. If all the questioners would identify themselves. And thank you very much professor.

MR. SMITH: Yes, thank you.

MR. HEITMANN: Yes, my name is Paul Heitmann with Comverge. We're a demand response provider. First I want to thank you for all the innovation that you've brought, particularly as an eBay user the package tracking is my favorite. Being able to find where your package is, is a simple but phenomenal thing.

Now my question is along the lines of you described your value chain of your transportation segment, but you also have building facilities, and package processing etcetera.

What's your view on the integration of the electric grid and service to those buildings? And any solar panels etcetera; that the roofs might support? And their integrating with their transportation assets? And also, how do you view that as giving you some business flexibility and variability when times are slow and you're not using the cars as much, you might be able to plug them in and use them for revenue generation along with the building?

MR. SMITH: Well, regarding the fist. We have two massive solar installations in California. We put solar panels on our big hub in Oakland, California. And I believe I'm correct that almost all of the power, I'm sure there's some surge or so forth that's not covered by the solar production. But it's produced by solar power.

We did the same thing down near Los Angeles; I can't remember where it was. I think it was Fullerton, but I may be off base. Which we just opened up about three weeks ago. We're looking at a similar situation at Woodbridge, New Jersey. We have a concept with Bloom Energy, some of you know then, to put their equipment in one of our hubs.

So I think that our position on that is if we can get close on the economics. Solar and locally powered is

where we want to go. Through the excellent work that Robbie Diamond and his folks did, and some other papers I've read. I believe that for a pretty good while, we could produce in the off peak hours a lot of electricity that is otherwise is simply going to waste.

I think if we had a national initiative to modernize the electrical grid and make it more efficient. We could produce even more power. Now obviously, using the unit of capacity as a storage unit for back and selling back, I think that's great too I'm just not a knowledgeable enough to comment on that.

As far as upstream, I personally believe and again somewhat maybe you all like the off shore production, may not be popular with everyone, but I don't think you can keep nuclear power out of the equation. It's the only completely carbon free power generation system we have.

Tonight after I leave here, I'm going to get on a plane and go to Paris, where we have our largest European hub. 80 percent of the power in France is produced by nuclear. I think there is very exciting nuclear technology on the horizon, developed by our government at Sandia in Los Alamos which will allow you to substantially mitigate

the perforation risk and so forth. Make small and pocket sized nuclear devices.

So I think if there's a commitment to the electrification of a lot of transportation. The up screen thing can be solved either with clean coal, or with nuclear. I don't think you can do it without both of those obviously. Without having carbon affects that nobody wants.

MR. HEITMANN: Thank you very much.

MR. SANDALOW: We're running short on time, so three quick questions please.

MR. JUNG: My name is Mike Jung, I work with Silver Spring Networks. FedEx is probably one of the smartest companies out there. Like the previous questioner said, you know where your package started, where it is right now, when it's going to get delivered. You also talked about a smart grid that would provide that equal level of information, for the electricity that gets delivered to your company and others. What would you say is one of the biggest most geographically diverse companies? How important is it to FedEx that the smart grid become interoperable and universal, so that you have essentially one standard that you can plug into as opposed to having a different standard in every place you serve?

MR. SMITH: Well you're getting way beyond my technical knowledge. I appreciate the comments about FedEx, but as I understand it, it is technically achievable it's simply a matter of national will, and policy. So you asked as to what one of the policies where it would seem to me that, that's something that the federal government could actually do, if it just had the kind of support that Chairman Dingell and our own United States Senator Lamar Alexander, who's a wonderful man by the way. If we could put behind us.

So I see no reason that, that could not be done. And it's not like we don't have the power right ways. You know it's an easier problem then citing a nuclear –- a new nuclear plant or some of the other issues we're talking about. It's just a matter of national will.

MR. JUNG: Thank you.

MR. BERKOVICH: Hi there, David Berkovich from Google. Thank you so much for coming. It struck me when you were making your introductory remarks that I also wrote a term paper on FedEx at Yale.

MR. SMITH: I hope you got a better grade then I did.

MR. BERKOVICH: Well, I did. So, I don't know what that says about Yale's grading system, because your paper is probably better than mine.

MR. SMITH: But you're obviously a lot younger than I am, and I can promise you the admission standards were quite different when I went there.

MR. BERKOVICH: Anyway my question is –- first of all thank you so much for your leadership and great talk tonight. You know I think one of the things that a lot of us in this room are pondering, is how do we bring the business community along. Whether it's a carbon tax or Cap and Trade, or you know the system that we need to reduce carbon emissions.

You're taking a very long view that something that might be painful in the short term but is going to be fruitful in the long term. And how do we get other businesses to think about this that way?

MR. SMITH: Well first of all remember the examples that I gave you. We had a little bit of pain, because we did some R & D on hybrid vehicles. Quite frankly, we're like every other for-profit company, there's a limit to what you can spend without a return.

So that's why I said it's a matter of production of scale, or the price of fuel making it an ROI project. The airplane decisions were real easy, because you could see the bottom line effect. And the solar installations that I mentioned to you, well they were right on the borderline. So we push it as hard as we can. But not to the point where we would put at risk our fiduciary duties to the shareowners or to the team members.

But that's why I made that point about "crossing the chasm" here. I think there is getting to be near unanimity about this problem. Let's face it. Both the Republican nominee and the Democratic nominee have both said that global warming is a big problem. That's -– that hasn't been the case in this country. I think you are seeing people who really know what they're talking about; many people in this room. They're saying that battery technology and plug-in all electrics and hybrid electrics are real technologies that can be deployed.

One of the big heads of the automotive manufactures recently spent about two hours at our headquarters. And he told me that no question, the recharge cycle on some of the vehicles they're going to be putting out here in just a few years are less than an hour. So when

you have that kind of utility and product improvement. It's just amazing to see this entrepreneurship. I'm very convinced that we're on the edge where you're going to see the marketplace take over here.

MR. SANDALOW: All right, we have time for just one more question, my apologies on that. We have a hard stop.

MR. LATTO: My name is Joseph Latto, I'm just a local.

MR. SMITH: I was hoping you weren't going down. You have the best tie by far.

MR. LATTO: Well thank you. Thank you very much. The question I wanted to ask you is. Are you familiar with Plug-In Partners, and are you a member of Plug-In Partners?

MR. SMITH: I'm not familiar with it.

MR. LATTO: Okay, Plug-In Partners is a coalition of industry of companies that are interested in purchasing plug-in vehicles. And basically it's a soft commitment to purchasing plug-in vehicles for industry. You go to their website and you sign in.

The reason I wanted to mention them is you talked about scale, there are about 30,000 members now I think that belong to Plug-In Partners that are industry. And I

think that it would be nice to switch from the soft commitment that they have with Plug-In Partners to actually starting to get down to the nitty gritty and actually brining a large number of them together and say okay what can we actually provide for you, and let’s get it all together and place one large order, to basically bring the cost down, and bring the ROI.

MR. SMITH: Well that’s a very good idea, and just like the first one. The suggestion put an RFP out there. If you’ll email me I’ll give you my card before I leave. And tell me how to put –- and we’ll take a look at that too.

MR. SANDALOW: Thank you sir.

MR. SMITH: No again, I just congratulate you for the conference and thank you very much.