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FACING THE WORLD TOGETHER: THE ROLE OF GREAT LAKES STATES AND PROVINCES IN DEVELOPING CANADA-UNITED STATES ENERGY

Session Chair - Chris Sands
Canadian Speaker – Benjamin Teitelbaum
United States Speaker - Kim Hill

INTRODUCTION

Chris Sands

MR. SANDS: Good morning. We have rung the bell in the Henry King tradition and we want to start our program. Thank you all for coming on a Saturday morning. This is always a little tough, especially when there are a lot of other things—like sleeping in—on your agenda. But we have a really terrific panel. Yesterday we talked, among other things, about energy and climate change; what kept coming up, as you probably recall, was the transportation sector. We ended up talking about cars and the amount of energy that transportation takes up, whether it is fossil fuels or other fuels. This morning’s panel will focus on the transportation sector in two very important ways, both freight transportation and vehicle transportation. We have a terrific panel this morning to give us two very important perspectives.

Our first panelist is Kim Hill. Kim is the Director of Sustainability in Economic Development Strategies at the Center for Automotive Research in Ann Arbor. He is part of the Automotive Communities Partnership, an important initiative which takes a look at how communities are adjusting to changes in the automotive sector. He brings with him a perspective of what this looks like from the people who make cars, the people who are involved in the supply chain, as well as the communities themselves and the impact the vehicles have on them.

Following Kim, we will have a presentation by Benjamin Teitelbaum. Benjamin is someone I have known for quite a while, and I am very pleased to have him here. He is with the Commission on Environmental Cooperation (“CEC”) that is part of certain North American Free Trade Agreement (“NAFTA”) institutions. He is a special assistant to the CEC with responsibility in the last few years for looking at sustainable freight transportation, which all three NAFTA governments have worked on. But most importantly, the CEC is bringing a lot of new ideas to the issue, so we are looking forward to hearing from both of them. With that, let me turn it over to Kim.

UNITED STATES SPEAKER

Kim Hill

MR. HILL: Thanks, Chris. Dan gave me a great vote of confidence yesterday.

As Chris alluded to, there was a big elephant in the room yesterday with the climate change and the use of energy in the transportation sector. A lot of folks point to the transportation sector as either part of the solution or the cause of the problem. You know, as all of you got here one way or another, we cannot do without transportation. And I would guess that, again, eighty-five percent of you could not get here without your car.

Therefore, what I am going to do is to give you a view from the automotive sector and in this region—make no mistake about it for those of you who are not from around here—the auto sector is the main driver of the economy. Without automotives, Cleveland would not be here. A lot of other towns

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would not even exist. So if the auto sector goes offshore or somewhere else, we have a lot of problems.

I was struck by a lot of things that were said yesterday, and there were certainly a lot of pithy comments, and by the time the day wore on most of my comments had been covered. But I did have one comment that kind of shines through, and in the work that we often do, it strikes me that there is a political element to something that should be very market-driven. I can see where the politics get involved: needing policies and the like to help people make some decisions. But I am struck that, and hold on to your seats, politicians are not the smartest group of people when they get together. These are the folks who said, “We will solve the budget problem.” They said, “We are going to take a lot of money out of the budget.” And, in fact, what they ended up doing was slashing a lot of money out of the budget that was not going to get spent anyway. I do not know if you have been following the budget news recently but there are billions of dollars where politicians said, “We can make these cuts but we were not going to spend it on the census anyway.”

So what does strike me is a very easy solution. I hear this from folks in the car companies, folks who I work with, and a lot of you folks have already said it. The solution is to put a price on carbon. Do not call it a tax because that is a bad word, apparently. Again, these are people who are sent to Washington to make some sort of change, and they cannot start a conversation on what seems to be a no-brainer to everybody who steps back from this—which is to make the price of gasoline a certainty. The auto industry and the consumers will respond.

Right now, Exxon and British Petroleum are the ones who are setting our energy policy. So as I see it, you first put a fee on carbon, then take the revenue from the fee, and pump it back into the companies that can most use that research and development money to help people avoid the initial fee. So if you tax gas and put the tax money back into research and development to make vehicles that can get better mileage, then you are giving people a means of avoiding that tax. It seems like a no-brainer. It seems very simple.

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I know a lot of you folks in the room would say it is not that simple, but it is a premise and we need to start talking about it.

One of the things I participate in is the Center for Automotive Research and our organization is based in Ann Arbor. The Center for Automotive Research ("CAR") is a non-profit independent research organization focused, obviously, on the auto industry, what is going on in the industry, and how it affects all the stakeholders in that industry. So we do some of our work for the automotive companies but a lot of work for state and local governments, foundations, and a lot of folks who want to understand where the industry is going. People want to know what the industry will look like two, three, four, five, ten years from now. And so in connection with that, I direct a program at CAR called the Automotive Communities Partnership, and it is in its tenth year now. We have communities and companies working together on enhancing the automotive endowment and helping the economy of this region. We have widespread participation from Ontario all the way to Illinois, including thirty-five and counting regional economic development organizations representing fifty counties, as this map signifies. We have cooperation from utility companies, automobile companies, suppliers, just a lot of different folks and organizations, like the Canadian Consulate, are actively involved in our program.

We provide a lot of analyzes and objective advice. We point out best practices when we see them. We provide forums on topical issues and actions, we help provide communities with needed industry information, and most importantly we try to get the communities to collaborate on that common mission. It has been a great run and it works out very well. The reason it works out very well is because the industry is highly integrated throughout the region. Each one of those dots is connected to every one of those other dots. You cannot build a motor vehicle in a vacuum. You need...
parts and supplies and people from across the region to make sure that an automobile gets assembled.

So one of the points of this Conference regarding energy, climate change, and the like, as I see it at the moment, is to examine three main energy issues that sort of interweave with the auto sector. One is energy efficient transportation. We are seeing investments from the private and public sources. The second issue is the industry’s energy demand and where that energy source comes from. Third, we look at things like greening the manufacturer supply chain (and I think my colleague on the panel will be talking a little more about the supply chain as well) and then experiencing a supply chain disruption, as seen most notably in Japan’s earthquake.

There were issues with the supply chain: the spread of it, the transport costs, and the fuels and risks inherent in it well before a major event like this happened. So now we are questioning: what are the lessons from the earthquake? Are we going to rethink globalization?

I would like to look at this manufacturing process chain in three sections. One is vehicle efficiency. Two is the manufacturing process chain, if you will, and all the materials, services, supply chain goods, and where the vehicle is actually manufactured. Third, overlaying all of that, is the transportation sector, the movement of goods and people, in addition to the energy the industry demands to make the vehicles and to be able to drive them.

Just a couple of little graphs that I would like to point out. This is what we commonly call an inverse relationship. The price of gas goes up. Traditionally, it went down, and it is correlated highly significantly over time. Every time you would see a spike in gas—you get to the late 1970s and I know a lot of you were around then—but the late 1970s was when the imported vehicles first started really showing up en masse market share. The

21 See, e.g., Thompson & Merchant, supra note 6.
23 See id.
27 See Thomas Klier, From Tail Fins to Hybrids: How Detroit Lost its Dominance of the U.S. Auto Market, 33 ECON. PERSP. 2, 2-3 (2009) (discussing the increase in automotive imports during the 1970s).
Detroit Three went from making up close to ninety percent of the market in the 1970s to less than fifty percent today.\(^{28}\)

That is an astounding drop in market share. One, because the competition was out there, but two, when you look at a graph like this, it is a non-response to market signals that the auto companies were not prepared for a number of times.\(^{29}\) We think they are prepared this time.

So what have they been doing? They have been working on energy efficient vehicles.\(^{30}\) We know we had a big price shock a couple years ago and then the economy tanked, but a couple of years ago the price of gas hit four dollars a gallon, and now we are right back there.\(^{31}\) However, in the last couple of years there have been some major reinvestments.\(^{32}\)

There have been a couple of bankruptcies from the auto companies, some restructuring, and some cutting of costs.\(^{33}\) Alternatively, there have been some major investments.\(^{34}\) The federal government has stepped in finally and helped open the research and development of, again, a very key industry to this nation's economy.\(^{35}\) The federal government has stepped in and helped in a number of other industries, but is has been very reluctant to assist the auto industry in basic research.\(^{36}\) But it has not resisted in telling the auto industry what to make along the way. Make it but we are not going to give you any money for it.

Finally, some money has come onto the table and the auto industry has responded to that money.\(^{37}\) Internal combustion engines have made remarkable strides towards efficiency; so have electric vehicles.\(^{38}\) These are all possible answers to a question and my premise is not one of them is the answer. I do not know if our Department of Energy (“DOE”) person is in the room from yesterday, but there has been an overemphasis on this second improvement

\(^{28}\) See Hill, supra note 22, at 6 (depicting the Detroit Three United States market share from 1970 to 2010).

\(^{29}\) See id.

\(^{30}\) See id. at 7 (discussing the various types of energy efficient vehicles).

\(^{31}\) See id. at 6 (demonstrating gasoline price fluctuations).

\(^{32}\) See id. at 22-25 (describing major government and automaker investments).

\(^{33}\) See id. at 23.

\(^{34}\) See Hill, supra note 22, at 22-25 (listing various investments).

\(^{35}\) See id. at 23.


Electric vehicles are clean until you factor in the source of electricity. So it depends where you drive your car.

If you are driving an electric car in Kentucky or Tennessee, it is a real dirty vehicle. Why? Because you get your electricity from a coal-fired plant. If you drive it in Louisiana, it is very clean. Why? Because Louisiana has nuclear power. So it just kind of bounces around. It is a moving target. Diesel is thirty percent more efficient. You cut down your greenhouse gases, but there is low level smog, NOx and SOx. Fuel cells are ten or twenty years away. In 1990, fuel cells were ten or twenty years away. In the year 2000, fuel cells were ten or twenty years away. Today, they are ten or twenty years away. It is a complex problem, but I have seen some test vehicles prototypes that have moved in that direction.

We heard about compressed natural gas becoming the domestic source of fuel. “Fracking” is the word we are all starting to become familiar with. How do you deliver it? Other fuels and technologies, namely biofuels, are great.
So case in point: three major manufactures have deployed selected electric vehicles, namely the Chevy Volt, Nissan Leaf, and Ford Focus Electric.\(^{52}\) We looked at these, and we said, “Where are these vehicles going to show up?” This is a little side project that we did and found that the launch in a number of states initially was successful.\(^{53}\) The ultimate question is, where else are they going to go and why?

Electric vehicles have hardly been selling so we do not know.\(^{54}\) There is no pattern yet. However, we looked at hybrid registrations and said, “Maybe that will be a proxy for that,” and so the retail or hybrid registrations are, as you can see, the orange states and those registrations are very high.\(^{55}\)

When we standardize that to hybrids per ten thousand residents, you can see the number is pretty high on the West Coast.\(^{56}\) And then we looked at what it was that kind of spurred hybrid purchases and consumers to get hybrids. There are a lot of incentives across the states. We looked at all fifty states and found that there are twelve major incentive type programs.\(^{57}\) And in the fifty states there are, as we totaled them all up, fifty-nine government incentive packages across the fifty states and fifty-one private type incentives, such as insurance incentives.\(^{58}\) Then we looked at the top ten states per saturation of per ten thousand vehicles, or per ten thousand people, and we found the more incentives that you offer, the higher adoption rate there is in a state.\(^{59}\)

That is probably not a no-brainer but we were able to kind of show that there is this statistical significance to that here. So as hybrids go, so will electrics. That is the question. We think that is probably how it will go because the electrics will sell to people who will trade in their hybrids to get an electric vehicle.\(^{60}\)

But what is it going to take? Government industry partnerships? Clean city programs through DOE, another electric vehicle project, consists of installing charging stations in a lot of places. There is money being thrown out


\(^{53}\) Hill, supra note 22, at 8.

\(^{54}\) See id. at 10.

\(^{55}\) See id.

\(^{56}\) See id. at 11.

\(^{57}\) See id. at 12; see also State and Federal Incentives, PLUG IN AMERICA, http://www.pluginamerica.org/incentives (last visited Nov. 15, 2011).

\(^{58}\) See Hill, supra note 22, at 12.

\(^{59}\) See id. at 13.

there to put in public and private charging stations, and then there are some programs across the cities to enhance some of these types of vehicles.61

So what has happened is a map like this tends to pop up showing the hydrogen and electric fueling stations. And it strikes us that there is a concentration of such fueling stations over on the West Coast and a lot of concentration over on the East Coast.62 Who is making the decisions and who is driving the policies in Washington? The guys on the West Coast and the guys on the East Coast. So out here we think that a short-range electric vehicle to drive from Ann Arbor to Cleveland is a no-starter. Maybe to go around campus here or to go downtown to the baseball game later today it works, but it is not really the solution. But what we are being given is the solution to be pushed in that direction. You need an electric charging infrastructure.63 For anybody who is going to buy an electric vehicle, you need a way to charge it.64 You need to have something at your home. Public charging stations are less of a concern if you can buy your vehicle and use it within the forty to ninety mile per charge range.65 If that works for you, public charging is not necessary.

So our hybrid sales are really a proxy for electric vehicle sales.66 Again, if they are, there is a lot of money being put in the basket that is not going to result in a lot of things. So we looked at what the companies have announced. We looked at three major companies: Nissan, Chevy, and Ford. What have they announced through 2015? Their capacity to build electric vehicles annually starts at thirty-five thousand in 2011 and increases up to 230,000 by the year 2015.67 We said companies are real fond of saying they can build, but who is going to buy?

So we looked at who is forecasting sales: Global Insight, JD Power, and CAR.68 We put our finger in the wind once in a while. Sales forecasts are at their peak. In 2015, 140,000 electric cars will be sold.69 You know what the

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61 See Hill, supra note 22, at 15-16.
62 See id. at 17.
63 See id. at 18.
64 See id.
65 See id.
size of the market is going to be in 2015? Fourteen million consumers or beyond. 70 Electric cars represent one percent of the cars. So ninety-nine percent of the other cars have to be something else. Here is the disconnect. This is what I am getting at: the government is putting a lot of money into developing electric cars and the payoff is 140,000 vehicles. 71 Is this going to solve the energy climate change problem? I leave that to you. Maybe the federal government will be buying lots of vehicles. It certainly put a lot of money in. 72

In the last couple of years the federal government put a lot of much-needed money in to prop up General Motors and Chrysler and I can get into a side conversation on that if you want; 73 this much needed money was a very good investment to help out General Motors and Chrysler. 74 DOE loans, Cash for Clunkers, and battery initiative totals $132 billion dollars the federal government has put into the auto sector in the last couple of years. 75 And what are we getting out of it? A push on electric cars. 76

At best, 140,000 vehicles will be sold. 77 The automakers, meanwhile, are taking a lot of that money and saying, “We are going to work on more fuel efficient technologies,” because the DOE, at least, had the foresight to say we will give you some money if you improve the mileage of the vehicle you are making and it must be improved by twenty-five percent. 78 There has to be a kicker in there. The auto companies just continue to invest anyway. This is what they have to do. They have to spend money to make money. They have to have a new product. Otherwise, they get left behind.

So we have seen ten or eleven billion dollars in investments and plants around the Great Lakes just last year. 79 This is for an industry that, if any of you just read the headlines, you may think is dead or dying. 80 They are investing eleven billion dollars in new infrastructure processes and products. 81

71 HILL & CREGER, supra note 69.
72 See Hill, supra note 22, at 22-25 (listing various investments).
73 See Automotive Industry Crisis, supra note 37.
74 See id.
75 Hill, supra note 22, at 23.
76 See id. at 22.
77 See id.
79 See Hill, supra note 22, at 24.
80 See, e.g., Della Loyd, As the Auto Sputters, Is Car Culture Dying?, POLITICS DAILY (Mar. 10, 2010), http://www.politicsdaily.com/2010/03/12/as-the-auto-industry-sputters-is-car-culture-dying/.
81 See Hill, supra note 22, at 24.
Annually, the auto industry spends close to eighteen billion dollars in re-
search and development, separate from anything that came from the govern-
ment. And look at who is spending it: Michigan, Ontario, Ohio, and Indi-
ana. These are major amounts of investment in new technologies.

So that is one soap box, and I know I am getting very close on time, and so the last few slides will go quickly. The other supply chain and disruptions, like transports and fuels, were already a concern before the earth-
quake. Why do we have a global supply chain in an era of hundred dollars per barrel of oil and a four dollar and escalating per gallon price of gas? Why do we source from China, from East Europe, and bring parts here when we could be building them here? Whose smart idea was that? I hate to say it might be one of you guys.

You advise people how to make money. You can move it over there, you can make some money because it is cheaper; but all of a sudden now, I am starting to see in the financial newsletters, people say, “Maybe you ought to be a little bit closer in, you can save some money.” So are we rethinking globalization? I think so.

Sole sourcing from suppliers? We need some redundancy. We need some regional ability to build vehicles in North America, Asia, and Europe. It ought to be self-sufficient. Each one of those three markets. We concen-
trate on too much production and key suppliers.

One factory went down that made microchips and supplied sixty percent of the entire globe with those microchips. That factory is wiped out. So why is it just there in Japan? Can we have a clean room here in Cleveland? Are we too stupid? No, we are not.

So these are the talks they give to the communities, states, and folks and say, “If you want to spend money, start hammering on these companies that are selling their cars here to produce more of it here.” The power disruptions we have in Japan are a long-term issue for the supply base; it will be read-
justed.

83 See Hill, supra note 22, at 24-25.
84 Id. at 26.
86 See Nanto, supra note 24, at 7 (referencing the closure of the Hitachi factory that sup-
plied sixty percent of the world’s airflow sensors following the 2011 earthquake and tsunami disaster).
87 See id.
88 See Tomoko Hosoe, Managing Japan’s Power Crisis, HARV. BUS. REV. (Mar. 21, 2011),
The supply chain in the auto industry is second to none. They can move freight very, very well and very efficiently. I do not know why we are moving it around the globe. It is probably to show you we can do it. So it takes thirty thousand parts to build a car. We always like to say you cannot build ninety-nine percent of a car. You cannot omit a part. You cannot sell it with three wheels instead of four. You need each part. Consolidation of suppliers increases the risk of disruption. There is just a whole host of these issues.

And finally, regarding this industry's energy demands, reliance and co-location are not by coincidence. The auto industry depends on huge amounts of energy to power its plants and the industry grew up where there was an abundance of inexpensive energy. Here is a good map. The red dots are the auto industry. The black dots are the coal burning power.

We drill in a little bit deeper; this is not by coincidence. It did not happen because somebody just threw a bunch of plants down. They need the power. They need tremendous amounts of power. It is getting regulations on the horizon. This is a threat. You admire Ontario saying it is not going to do coal any more.

If you have a substitute and you can get it to the industry for a decent price that is comparable—that is fine. You cannot just do it here. You just cannot wipe coal out of the equation like they want to do on the East Coast and the West Coast because the industry that drives the economy of this region and the economy of the United States depends on this power. Taken out of the equation, all of those red dots will go away.

We like to talk about the life cycle of an automobile; people say the car is the problem. Of all a car's CO2 emissions, seventy-five to eighty-five percent of it is from driving the car around. The average life of a motor vehicle on the road right now is ten years and growing. So actually, it is seven-

90 See id.
92 See Hill, supra note 22, at 27.
93 See id. at 29.
94 Id. at 29.
95 Id.
96 Id.
97 See id.
98 Id. at 31.
99 See, e.g., Chris Woodyard, *Average Age of Vehicles in the U.S. Highest in 15 Years,*

http://scholarlycommons.law.case.edu/cuslj/vol36/iss2/13
and-a-half percent of emissions per year. To build that sucker is up to twenty-five percent of the total car emissions and that happens in the first year.

Where I think the solution lies is to get the supply chain closer. Work with the companies to green them up, supply some cleaner power, and you can stop picking on the motor vehicle itself. The vehicle is a fantastic technology, but I think a comprehensive holistic solution is needed. No one industry or sector can solve the energy dilemma.

Solutions to improve drive train technologies, fuel choices, give a full pallet of energy generation choices, and regionalize the supply chain.100 Certainly, work with communities, states, and provinces to capitalize on foundational strengths. I want to point out the DOE person yesterday was very proud of the fact that with the money that the DOE is pumping into developing batteries, by 2015 you will have a battery in your car that can have a range of a hundred miles and it will only cost you ten thousand dollars.101

I wonder what a Diehard replacement will cost when you go into Sears and need a new battery. What are you going to do? Throw the car away or what? I do not see that as a major advancement and I do not see that as a good place to spend billions and billions of dollars.

I think they are going to have a Midwest renaissance through green manufacturing. This region can position itself for the twenty-first century going forward as environmentally progressive and economically competitive. We can sustain employment and living wages, adapt brownfields, and reuse a lot of the infrastructure that is out there right now. We can capitalize on the innovation and technology.

With that, I am going to stop. I could say a lot more as you can imagine. Thank you very much. I look forward to your questions.

MR. SANDS: Thank you very much, Kim, and now we will go straight to Benjamin. It is all about the “Benjamins” in the end.


100 See Hill, supra note 22, at 32.

MR. TEITELBAUM: Good morning, everyone. We recently published after close to two years of work a report on sustainable freight transportation. But before I get into that, I just want to say that we did our launch in Washington, D.C. on March 31, 2011, and at that time, the House Transportation Infrastructure Committee of the Congress was holding hearings on the future transportation bill and they had some forty experts there. Each expert had something like four minutes to speak and there were stakeholders from industry, non-governmental organizations (“NGO”), and other experts from around the country. We cover a much larger geographic zone: North America.

So I am going to take a little more than four minutes, if you do not mind, to present the facts. I think most of you know something about the Commission for Environmental Cooperation (“CEC”). We were set up in 1994 when the North American Free Trade Agreement (“NAFTA”) was finally approved by Congress and the United States, Canada, and Mexico.

In order to get the agreement passed at the time, President Clinton realized that he needed as much of the Democratic vote in the Congress as possible. It ended up being voted by the Republican majority in Congress, but he wanted to make sure that he had enough of the Democratic support so there were two side agreements that were signed, one on labor and one on the environment.

The environment created the Secretary position for which I am working with right now. In the side agreement that was signed was an article called

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105 See COMM’N FOR ENVTL. COOPERATION, supra note 102.
106 See id.
108 See COMM’N FOR ENVTL. COOPERATION, supra note 102.
Article XIII, which allows the Secretary to carry out independent research.\textsuperscript{109} It does not necessarily have to be approved ahead of time by the three governments.\textsuperscript{110} It is supposed to support any sort of innovation and research in the environment.\textsuperscript{111}

We carried out this research on sustainable freight transportation.\textsuperscript{112} It is the seventh report that the Commission and the Secretary have put out.\textsuperscript{113} Some of the other reports were on the impact of genetically modified corn, MIES, which you could imagine was fairly controversial, probably the most controversial report put out by the Secretary, because it did not get a very good reception in part of the United States.\textsuperscript{114} Opponents wrote a lengthy letter attached to the report basically disclaiming much of what was said in the report.

It can become controversial, but I do not think we are in that sphere this time. In fact, there is total support from the governments for our work.\textsuperscript{115} Some of the last reports included a report on the electricity sector and, the one we are producing today, is on green buildings.\textsuperscript{116} Why did we choose to

\textsuperscript{111} Id.
\textsuperscript{113} See id.
\textsuperscript{114} See CEC releases discussion papers examining effects of genetically modified corn on Mexican maize, Comm’N for Env’tl. Cooperation, http://www.cec.org/Page.asp?PageID=924&ContentID=1979 (last visited Nov. 13, 2011) (stating that the Secretariat of the CEC released a set of discussion papers to launch a formal study on the potential effects of genetically modified corn on traditional maize agriculture in Mexico).
\textsuperscript{115} See Evaluation of Canada’s Participation in the Commission for Environmental Cooperation (CEC), Env’t Can., http://www.cc.gc.ca/doc/ae-ve/CEC-CCE/s2_eng.htm (last visited Nov. 13, 2011) (stating that the unprecedented commitment by the governments of the United States, Canada, and Mexico to account internationally for the enforcement of their respective environmental laws are worth noting and the CEC’s work is intended to promote policies and actions that provide mutual benefits for the environment, trade, and the economy).
work on sustainable freight transportation? The last report we did was on green buildings.\textsuperscript{117} The theme, if you will, was on greenhouse gas emissions and the sectors most impacted are the three national economies in terms of producing greenhouse gas emissions.\textsuperscript{118}

While the debate has changed to some degree, when we started this project two years ago, you will remember the context was very different. We were talking about climate change. We were talking about cap and trade. Everything seemed to be on a forward moving symmetrical motion and that we were moving towards those areas.

In fact, the agreements would be put forward and solutions found. First, green building was divided by the Intergovernmental Panel on Climate Change, who you remember produced some of the controversial issues with regard to climate change, but green building was the initial area where energy and the most mitigation could be applied very quickly.\textsuperscript{119} It was the lowest hanging fruit on the evaluation that was carried out. The second was transportation.\textsuperscript{120} We decided the first event we would put out was on the green buildings; the second on transportation.

Now, we thought we would do transportation, but when we started looking at the transportation sector in North America, we realized very quickly that we needed to focus our attention. We did not have the capacity to deal with the entire transportation sector and we thought in dealing with transportation the one issue that seems to impact the three countries most directly in relationship to trade was freight.\textsuperscript{121}

\textsuperscript{117} See id.
\textsuperscript{118} See CEC champions green building, EUR. COMM'N ENV'T, http://ec.europa.eu/environment/ctp/inaction/showcases/eu/175_en.html (last visited Nov. 13, 2011) (stating that the report published by the CEC champions the concept of green building as an effective way to cut North America's carbon-dioxide emission levels by a third).
\textsuperscript{119} See Green Building Facts and Figures, UK GREEN BUILDING COUNCIL, http://www.ukgbc.org/site/document/download/?document_id=950 (last visited Nov. 13, 2011) (stating that according to the IPCC, buildings account for 8.6 gigatons of carbon dioxide emissions, or almost one quarter of total world emissions and overall buildings have a higher CO\textsubscript{2} mitigation potential than any other sector).
Freight was the lifeline, if you will, between the three countries: Canada, Mexico, and the United States.\textsuperscript{122} How do you go about carrying out research and developing recommendations to the three governments for the three countries on a continental scale? We had to put together a panel that included industry, academia experts, institutional representation, and the private sector.\textsuperscript{123} You can imagine the challenge just in putting together an advisory group. If we wanted, we could have probably had seventy people in that group. We decided to limit the number of participants because we wanted something that we could work with.\textsuperscript{124} We included in the advisory group FedEx, as you see.\textsuperscript{125} We included Wal-Mart. When we focused on Wal-Mart in Mexico because we had FedEx from the United States, we wanted to have a balance between the three countries.\textsuperscript{126} We had some NGO.\textsuperscript{127} We had Pollution Probe from Canada.\textsuperscript{128} We had Sierra Club from the United States.\textsuperscript{129} Sierra Club said it would join the advisory group only if the unions came in.

We did not have any problems with that. So we had a group representing a coalition of unions from Washington called the Change to Win, which included the Teamsters and others. We had the Environmental Defense Fund, the Railroad Association of Canada, and so on and so on.\textsuperscript{130} I invite you to read the report that you all got. You will see in inside we have a fairly extensive list of people who we consulted in the three countries.

The advisory group was not the only group that formed the basis of our consultation. We had a two-track approach.\textsuperscript{131} We realized this is a report we are submitting to the governments. We want the government authorities to react to the report. We wanted to ensure we were not off the map when we finally do produce the report and we also wanted to ensure that we include the major stakeholders within government. So we also had some sixty government officials that we consulted in the three countries.\textsuperscript{132}

\begin{thebibliography}{99}
\bibitem{122} See id.
\bibitem{124} See generally id.
\bibitem{125} See generally id.
\bibitem{126} See generally id.
\bibitem{127} See generally id.
\bibitem{128} See generally id.
\bibitem{129} See generally id.
\bibitem{130} See generally id.
\bibitem{132} See generally id.
\end{thebibliography}
We carried out consultations in Mexico with the Department of Transportation ("DOT") and Environment of Mexico. We did the same thing in Washington with DOT, Department of Commerce, Environmental Protection Agency ("EPA"), and included the border states. These states included California, Washington State, New York, New Jersey, and Texas. We did the same thing in Canada, same process with the Canadian officials, and ten provinces in this case participated.

The process included the morning session with the officials in an office and a conference call with the various state representatives. In the United States, that also included Port Authorities; we had the Port Authority of Los Angeles and New York State. I think we were fairly exhaustive in our consultation process and the public meetings that we held in the three countries.

I think this was the quickest report that has been done by the CEC but it still took us close to two years to complete. If you do not mind, I am going to skip a little bit closer to the conclusion and straight to some of the findings that we had related to this consultation.

Recently, just as we were rolling out the report in Washington, Secretary LaHood was following up on President Obama's announcement on energy security and he said the transportation sector accounts for two-thirds of the United States oil use and contributes one-third to the nation's greenhouse gas emissions. We have an opportunity and an obligation to take action.

There is recognition from the three governments and from the officials in the three governments and stakeholders of the importance of moving forward in the transportation sector. If you look at the map that we have here, those are the main corridors. This is where ninety percent of the trade will take place between the three countries with movements of freight, including road and rail.

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133 See generally id.
134 See generally id.
135 See generally id.
136 See generally id.
139 BUREAU OF TRANSP. STATISTICS, supra note 121.
140 Id.
I should say in carrying out our report, we did focus essentially on the road and rail. We realized that inland waterways and marine were important contributions. Air cargo is a spectacularly growing and large source of challenge in terms of mitigation of greenhouse gases. But I would say eighty-five to ninety percent of our focus was on road and rail.

The report identifies several key challenges I will try to touch on briefly. First among these is the challenge of growth. NAFTA’s own population is expected to grow from 460 to 540 million people by 2030 and 600 million by 2050. This is notwithstanding the downturn that we recently had and you can see things starting to pick up in all three countries. Mexico has a growth rate of about five percent or more gross domestic product ("GDP") per year.

I guess there is a lot of misconception about Mexico. We hear a lot about the violence in Mexico and we hear a lot about poverty in Mexico but, in

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141 See Destination Sustainability: Reducing Greenhouse Gas Emissions from Freight Transportation in North America, COMM’N FOR ENVTL. COOPERATION, http://www.cec.org/Page.asp?PageID=1226&SiteNodeID=310&BL_ExpandID=154 (last visited Nov. 13, 2011) (stating that while water, air, and other modes of freight transportation are not covered in any depth in the CEC report, it is important to note that they are growing rapidly).

142 See id. (stating that in the United States, greenhouse gas emissions in case of air mode will increase twenty-seven percent between 2007 and 2030 and very little control is exercised over aircraft and maritime emissions by national, regional, or international agencies).

143 See id. (stating that along with increasing population, economic growth, and increasing trade have come increasing greenhouse gas emissions and evidence of a changing climate).

144 See id. (stating that North America’s population will increase by 60 to 135 million people between 2005 and 2030, or by fourteen to thirty-one percent).

145 See Recession over, Bank of Canada says, CBC NEWS (July 23, 2009), http://www.cbc.ca/news/business/story/2009/07/23/bank-canada-economy-recovery.html (stating since the last quarter of 2008, the Canadian economy will grow by an annualized rate of 1.3 per cent in the next quarter); see also Economy: Mexico recovery on track but reforms needed in tax, labour policy and education, OECD, http://www.oecd.org/document/29/0,3746,en_21571361_44315115_47895901_1_1_1_1,00.html (last visited Nov. 13, 2011) (stating that Mexico is recovering strongly from the global recession, helped initially by booming exports and more recently by a pick-up in private consumption and investment); see also U.S. Economy Slowly Recovers from Worst Recession on Record, U.S. DEP’T OF STATE (July 29, 2011), http://iipdigital.usembassy.gov/iipdigital-en/index.html#axzz1dfKqBNJN (stating the United States economy has grown for the eighth straight quarter, showing an increase in the gross domestic product at a 1.3 percent annualized rate from April to June).

fact, Mexico's average income is twice that of Brazil. So it is a huge and growing economy with a huge growing middle class.

The North American economy will grow by seventy to one hundred-thirty percent between 2005 and 2030. United States interstate highway travel demand measured in vehicle miles traveled will increase from 690 billion to 1.3 trillion miles traveled. That is another 1.8 million trucks and I think this is an important issue to focus on. I am not denying that we are going to be putting out more regulations to increase efficiency in both the auto sector and the trucking sector.

I will be speaking to that in a few seconds but we are talking about capacity. How much capacity? How is this capacity shortfall that we have in our infrastructure going to impact in terms of greenhouse gas emissions, in terms of pollution, in terms of some of the health issues related to the transportation sector?

By value, about eighty-eight percent of United States trade with Canada and Mexico moves on land. For Canada-United States trade, as you see, one half of the total truck traffic was handled in three ports of entry in North America. One half of all the truck traffic in North America is handled in three different crossings: Detroit-Windsor, Buffalo-Niagara Falls, and Laredo-Nuevo Laredo. Those are the main ports of crossing.

\[147\] See Fund Profile: Mexico Small-Cap ETF, GLOBALXFUND, http://www.globalxfunds.com/Investment_Case/MEXS_Profile_Sheet.pdf (last visited Nov. 13, 2011) (stating that Mexican consumers have a per-capita income twice as large as Brazil's consumers).


\[150\] O'Neil, supra note 148 (stating that the United States interstate highway travel demand, measured in vehicle-miles traveled, will increase from 690 billion in 2002 to 1.3 trillion by 2026).


\[152\] O'Neil, supra note 148.


\[154\] O’Neil, supra note 148.

\[155\] See id.
For the full year 2010, United States surface transportation trade with its North American trade partners in Canada and Mexico shot up a record of 24.3 percent versus calendar year 2009. The United States DOT confirmed this in the trade report issued March 17, 2011. In fact, 2010 was the largest increase annual percentage gain since NAFTA was signed in 1994. The rebound in the economy had an impact very quickly in terms of transportation and freight movements across the three countries.

As you explained, Kim, we are on a common supply chain. Autos that are built in Detroit or Windsor, its parts are coming from Mexico. I think it was Steven Blank in one of his presentations who had a diagram of a car with flags attached to each part in the car and it is just incredible to see where the parts come from. It is a seamless supply chain in some ways in building in the automotive sector, the aeronautic sector, and many sectors of our industry. The three countries, in fact, are integrated in terms of supply chain. Interestingly enough, I am sure none of you would have answered if I asked you the question, which form of transportation, in fact, carries the largest tonnage? You will see it is the pipeline. So that goes back to the issue that was addressed by the investor yesterday. Pipelines are an important issue but it is not a sector that we focused on.

These are some of the findings, then, in terms of impact on freight. The transportation sector in North America is only second to electricity generation in terms of CO₂ emissions produced. The United States freight alone

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158 See id.
159 HEAVY DUTY MFRS. ASS’N, supra note 156.
161 See Jean-Paul Rodrigue et al., Transport Corridors in North America, HOFSTRA U., http://people.hofstra.edu/geotrans/eng/ch2en/appl2en/ch2a1en.html (last visited Feb. 6, 2012) (stating that better integration between production and distribution due to cost and time efficiency along transport corridors make them an intermodal supply chain composed of gateways and inland ports and functionally integrated supply chains).
162 See id.
had emissions increase by seventy-four percent between 1990 and 2008.\textsuperscript{164} It is a huge swath of problems that we face and challenges that we face in terms of greenhouse gases.\textsuperscript{165} It does not mean that we are not doing anything about it but it means that we definitely have a challenge in dealing with this.

Fuel standards alone will not solve the problem.\textsuperscript{166} For sure the technology and fuel standards that we apply and the issues around fuel are important contributors. But if you are looking just in terms of volume, and this is I think the key here, some of the projections that we have looked at and some of the reports that we have seen, one from the United States DOT shows that in light-duty vehicles, we see a twelve percent decline in terms of contribution to greenhouse gas emissions from 2007 to 2030.\textsuperscript{167}

While in the freight sector, on the other end, we show projections of a twenty percent increase.\textsuperscript{168} So while we are succeeding in a number of areas in the automobile and lightweight trucking vehicles, in the heavy-duty truck movement of freight we do have a challenge and it is a challenge that the United States, Canada, and Mexico understand.\textsuperscript{169}

In fact, President Obama announced just recently in the last year that by 2012 or 2014 heavy-duty trucks will have to reduce and be more efficient in terms of impact on the environment and the production of emissions and greenhouse gases.\textsuperscript{170} Canada followed suit practically the next day.\textsuperscript{171}
I think at the time the Minister of Environment, Jim Prentice, was visiting a Canadian tire store in Vancouver and announced Canada will harmonize with the United States.\textsuperscript{172} For sure it was discussed beforehand but it did sound a little bit impromptu the way it came out. This was negotiated before and, in fact, Canada has been working with the United States ensuring both harmonization in heavy-duty truck and light vehicles.\textsuperscript{173} As for light-duty trucks, we do have a harmonized emissions regulatory environment.\textsuperscript{174}

Our efforts are also to bring Mexico into the fore because we are not going to stop air flows at the border like we try to stop trucks or people. Air just moves without distinction of border and we are in one geographic zone. It is important that we have common policies to deal with the environment. That was the intention, in fact, of setting up the CEC in the first place.

Yesterday, we addressed some of the challenges we face in a general way in dealing with carbon issues and so forth. We also discussed inadequate coordination among transportation agencies being a major issue and that not only deals with the three countries but it is also state-to-state, municipal-to-municipal, province-to-province.\textsuperscript{175} We are in a federal system.

Each of the countries is a federal structure. Even though Mexico may be a little more centralized in terms of policy, it remains a federal structure. So are Canada and the United States, and it is often difficult to create national standards that can be applied. It requires agreements between provinces, between states, and so on and so forth. We do have a challenge there. We have a major issue with regards to the impact of planning transportation infrastructure and the issue of land use. Some movements are coming forward. I know in California there is some legislation that would require any kind of infrastructure development to include land use planning.\textsuperscript{176} So that is moving in the right direction.

Inadequate funding for transportation infrastructure is a common theme. It comes back to haunt us quite a bit. We have to realize that we are in a competitive environment when it comes to trade and transportation. The European block is moving much quicker in terms of integrating and making major investments in terms of infrastructure developments.\(^{177}\)

Just to give you an idea, China last year spent nine percent of its GDP on infrastructure; India, three-and-a-half percent of its GDP.\(^{178}\) The United States spent less than one percent of its GDP on infrastructure.\(^{179}\) Of course, in terms of scale in dollar words, it is not a comparative analysis that is going to work but it just gives you an indication of where we have to move.

I think we went through some one hundred and forty reports that were produced on sustainable freight transportation and freight-related issues over the last two years. So there have been a lot of reports. There have been a lot of commissions that were set up. This is the only report that deals, I think, with North America as a transportation system. I think it is important to focus on this. I think this is a message that we need to bring forward to some of the policy makers in our three countries.

Now, there have been efforts, and I should say before I get into the recommendations, there was an event in 2008 as part of the Security and Prosperity Partnership of North America when the Canadian Minister of Transportation came out of the Montebello meeting and asked that there be a meeting of the three transportation ministers to look at the North American transportation system as a whole.\(^{180}\)

Those meetings never were carried through.\(^{181}\) To my knowledge, I have never been able to find any kind of memo or information that the officials from the three governments actually followed through on this. There were

\(^{177}\) See TEN-T / Transport infrastructure, EUROPE COMM’N MOBILITY AND TRANSPORT, http://ec.europa.eu/transport/infrastructure/index_en.htm (last modified Apr. 29, 2011) (stating the total investment on transport infrastructure during the 2000 to 2006 period was €859 billion in the European Union).


\(^{179}\) See Life in the Slow Lane, THE ECONOMIST (Apr. 28, 2011), http://www.economist.com/node/18620944 (stating that total public spending on transport and water infrastructure has fallen steadily since the 1960s in the United States and now stands at 2.4% of GDP).


elections, there were minister changes, governments changed, and the initiative fell through. So the first recommendation that we make in our report is the need to have a forum of ministers of transportation and environment to meet annually to discuss transportation policies in the three countries.

I think it is really important. I think Canada has an initiative called "Gateways and Corridors" at Transport Canada.\textsuperscript{182} The United States is reviewing a major transportation bill, which will define how the transportation system develops over the next few years.\textsuperscript{183} Mexico is moving into major investments in infrastructures of roads, rail, and ports. Unless we sit together, this is not one transportation system in North America.\textsuperscript{184} Unless we sit together, we are not going to have as competitive, efficient, and as sustainable a system as we want to have and this is will impact energy.\textsuperscript{185} It is going to impact greenhouse gases.\textsuperscript{186} It is going to impact fuels.\textsuperscript{187}

Let me conclude very quickly. We discussed the carbon price issue. I think just to go back to yesterday, we had a member from the Organization for Economic Co-operation and Development say that first thing you have to have is a price on carbon. And everybody around the table from industry and everywhere agreed but did not focus on the issue.

North America, as opposed to Europe, is not something that comes from the top down.\textsuperscript{188} It is something that comes from the bottom up.\textsuperscript{189} You have to get all the stakeholders in all the different parts and regions of the country to agree on a common theme. It is kind of more difficult than what goes on in the European Union. Anyway, we decided for purposes of efficiency to move a little bit away from a major discussion but we recognize that the stakeholders did agree that we need to have some sort of signal both for investment purposes and for marketing purposes on carbon.

The third recommendation, of course, is that we need to improve efficiency by investing much more in terms of technology and so forth.\textsuperscript{190} We need to have that investment in order to move forward.

The fourth main issue is more cross-border collaboration.\textsuperscript{191} Empty miles, too many trucks, and too many movements of freight are inefficient.\textsuperscript{192} We

\textsuperscript{183} H.R. Res. 2887, 125th Cong. (2011) (enacted).
\textsuperscript{184} Comm’n for Envtl. Cooperation, supra note 164, at 53.
\textsuperscript{185} See id.
\textsuperscript{186} See id. at 22.
\textsuperscript{187} See id. at 53.
\textsuperscript{188} See id. at 54.
\textsuperscript{189} See id.
\textsuperscript{190} See id.
\textsuperscript{191} See id. at 53.
\textsuperscript{192} See id.
need better logistics between the three countries in terms of ensuring that we have less empty miles. Maybe we should start dealing some of the cabotage rules; open skies is a good format to think about. We did that in the airline industry—maybe we can apply some of those concepts to the freight sector and transportation sector.

We have got some great initiatives. In the United States, you have the Smart Ways Program, which is a voluntary program to support the freight sector to develop and integrate new technologies in order to become more efficient.\(^\text{193}\) It has been a very, very successful program.\(^\text{194}\)

In Canada, you have what is called Fleet Smart, which is a driver-training program that has an impact of between five and ten percent in terms of reduction of green house gases just by improving the driving skills of the drivers.\(^\text{195}\) There is a memorandum of agreement now between the United States’ Smart Ways, the EPA, and Fleet Smart to integrate both programs and to promote both programs in the United States and Canada.\(^\text{196}\)

We are working with Mexico in trying to get it to participate as well. It will be easy in Mexico because in Canada we work on the metric system so Mexico can just adapt it quite easily. The United States is developing other techniques that will support that kind of work.\(^\text{197}\)

The last issue is on data and data gathering.\(^\text{198}\) I think it is important to understand that we need proper information that can be used by the three governments for the three countries that have some congruence in terms of analyzing the situation. When we started doing this research project, we could not get comparable basic information between Canada and the United States or between Canada, the United States, and Mexico. There are different definitions on what is a light- or heavy-duty truck, what is freight transportation, and so forth.\(^\text{199}\)

We need to have common indexes between the three countries. I think we can do it. It is not a major challenge. There have been efforts between the


\(^{197}\) See id.

\(^{198}\) COMM’N FOR ENVTL. COOPERATION, supra note 164, at 54.

\(^{199}\) See id.
three statistical institutes in the United States, Canada, and Mexico, and we need to support it by government policy. Thank you very much.

DISCUSSION FOLLOWING PANELISTS’ REMARKS

MR. SANDS: This has been a very good discussion and we have some time for questions. I will take advantage to start it off.

There is a connection between the things that you were both saying. Kim, you were talking about a global supply chain that has a certain illogic to it with transportation costs rising because of fuel costs and, Benjamin, you were talking about the transportation infrastructure being weak and also the need to be where energy sources are located. Are we about to see not a government-led sort of drive or efficiency but an industry-led drive that consolidates the industry geographically to deal with some of the supply chain issues and to address some of the sustainability issues with freight? Or do you think that is too optimistic? How would you see the drivers here with this change?

MR. HILL: I think we are seeing a change and, in the absence of any defined government policy, Exxon and British Petroleum are setting our policy for us by increasing the transportation costs. There is nothing like getting the private sector to respond by ballooning a line item on the cost sheet for them and they will start attacking it.

So I think it is happening. For years we were talking in our office about these global supply chains and the risk in the equation. We saw the equation, transportation cost, freight in, freight out, and cost of labor. Every argument was thrown up there and we said, "Where is the risk component in this thing?"

The risk of some disruption in the supply chain was very, very small. As we saw, the probability is very small. But, if there is an event, the cost is enormous. I think that we are embarking on a new era and I can predict that we are going to reexamine why we would globalize as we have done so.

MR. SANDS: And, Benjamin, do you think that the governments are going to be able to get ahead of this or will they be playing catch-up based on what you have seen?

MR. TEITELBAUM: I think the challenge near shoring is happening. It was happening even before the 2008 recession. Manufacturing statistics in

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200 See id. at 59.
202 See id.
203 See id. at 2.
the United States were starting to increase.\textsuperscript{204} I do not know if everybody paid attention to it and I think we are going to see that trend continue, which is probably a great thing in terms of better energy use and so forth.

The problem really is that we still are not going to reduce the amount of trade. It is a question of volume. It is relative volume; so trade is increasing.\textsuperscript{205} Populations are increasing.\textsuperscript{206} Globalization is going to be there even if we have near shoring and more of the manufacturing of goods takes place in North America, but the capacity is just not there yet.\textsuperscript{207}

We are not investing sufficiently in the infrastructures in each of the countries.\textsuperscript{208} And we are not talking to each other in terms of planning.\textsuperscript{209} So if Panama Canal increases in terms of opportunities for larger ships to come through and new United States ports develop larger capacities, we remain in a situation where infrastructures have to be built there: roads, rail, and whatever else to enable that movement to take place.\textsuperscript{210}

Now, there are a lot of things going on at the same time. Inland ports are being developed to redistribute, act as warehousing, and so forth but the capacity issue from everything that we have seen in terms of data is heading towards handling those movements in an efficient and competitive sense.\textsuperscript{211}

HON. JAMES PETERSON: My name is Jim Peterson. Benjamin, very briefly, did you look at the possibility of long combination vehicles, one tractor, two fifty-three foot trailers, and if so, how much can they save in terms of greenhouse gases?

MR. TEITELBAUM: We looked at it in terms basically because the stakeholders were around the table and raised it as an issue fairly regularly but it came up now and then. The problem is a lot of that regulatory environment regarding weight and size are state controlled.\textsuperscript{212}

HON. JAMES PETERSON: Thank you.

MR. TEITELBAUM: So in Canada, I think it is over a hundred thousand pounds per trailer.


\textsuperscript{205} COMM’N FOR ENVTL. COOPERATION, \textit{supra} note 164, at 16.

\textsuperscript{206} See id.

\textsuperscript{207} See generally \textit{TRANSP. ECON. & MGMT SYS., INC.}, \textit{supra} note 201, at 4.

\textsuperscript{208} See id. at 2-3.

\textsuperscript{209} See id.

\textsuperscript{210} See id.

\textsuperscript{211} See id.

HON. JAMES PETERSON: It just means you have two trailers as opposed to one.

MR. TEITELBAUM: I know but regulatory issues are state controlled. There are issues about safety.

HON. JAMES PETERSON: We have looked at that in Ontario and Québec, and Québec allows it.213 Ontario is testing it right now.214 We will probably allow it very soon.

MR. TEITELBAUM: This goes exactly to the two recommendations we made. The first one is we need the three transportation government officials and environmental ministers to meet on a regular basis and underneath that, at the same time practically, we need a forum of stakeholders to discuss those issues with those decision makers to ensure we have national standards that meet those interests and increase efficiency.

HON. JAMES PETERSON: Kim, very briefly, with China being the fastest growing market for automobiles, how can we repeal globalization? Through volume they are going to have much cheaper cost for components.215

MR. HILL: We do not need to repeal it. We are doing what we are doing. General Motors is one of the largest sellers of vehicles in China and so we co-locate.216 The auto industry is great at scaling up operations.217 We do not need to make them all in one place and ship them elsewhere.218 China is trying to develop the infrastructure, the manufacturing processes, and the power generation to be able to build enough cars to meet the demand of their domestic market.219

People are talking about what happens when the Chinese start exporting cars over here. China is going to have to catch up with demand in its own country before it even thinks about supplying over here.220 We have seen it time and time again that a company based overseas comes to the North American market: Toyota, Honda, the Koreans, and the Germans all started importing vehicles here.221

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214 See id.
215 Patti Waldmeir, China’s Auto Market Remains Buoyant, FIN. TIMES (Nov. 15, 2011), http://www.ft.com/intl/cms/s/0/e622bce3-0f8c-11e18b8e7c00144feac4bd0.html#axzz1e15UpYOi.
216 See id.
217 See id.
218 See id.
219 See id.
220 See id.
221 See id.
They caught on and by the time they get to about one percent market share here in the United States, they may decide they are going to build an operation here and then build up the supply infrastructure.\textsuperscript{222} China is just another data point out there.

MR. ROBINSON: Michael Robinson from Fasken Martineau in Toronto. A question for Benjamin. I only read one annual report a year. It is by some fairly successful investor called Buffet. In the Berkshire Hathaway annual report last year, I noticed that he thought it was a good idea to buy a little railroad.\textsuperscript{223}

MR. SANDS: The Burlington Northern Santa Fe Railway.

MR. ROBINSON: Yes, he had a few billion dollars lying around to do something with it. Some of the comments here about the amount of freight, cost per mile, and barrels of diesel used by rail compared to truck made me wonder why your report did not say much about rail. I thought that must mean that Buffet is even smarter than everybody thought because the rail system is so good and so good for the environment that it does not need improvement. It is the darn trucks. So can you tell us a little more? Does that make sense?

MR. TEITELBAUM: We did focus on rail as well. It was not as much as we focused perhaps on the trucking issue to some extent but I think we tried to parcel out both. We focused on intermodal shifts as one opportunity to reduce greenhouse gases. For sure rail is definitely a lower emitter of greenhouse gases, more efficient, and steel on steel works a lot better than the roadways.\textsuperscript{224}

But we also noticed from speaking to shippers and carriers that the decision to use one mode or another is driven by the market and no matter how we look at it, and even if you look at the Burlington Northern Santa Fe Railway, I think about thirty percent of their merchandise on the rail is coal.\textsuperscript{225}

How do we then define greenhouse gas impact and so forth? I did not want to get into that discussion, and I am not trying to. I think rail is an important part of it. Even though our report is focused on improving sustainability in the freight sector, the secret we can speak amongst ourselves is that the freight system in North America is probably one of the most efficient in the world.\textsuperscript{226}

\textsuperscript{222} See id.
\textsuperscript{223} Nick Zieminski, Buffett Buying Burlington Rail in his Biggest Deal, REUTERS (Nov. 3, 2009), \url{http://www.reuters.com/article/2009/11/03/us-burlingtonnorthern-berkshire-idUSTRE5A22A720091103}.
\textsuperscript{224} TRANSP. ECON. \& MGMT SYS., INC., supra note 201, at 24.
\textsuperscript{225} See id.
\textsuperscript{226} COMM’N FOR ENVTL. COOPERATION, supra note 164, at 1.
It is not that it is inefficient; it is just that we have to maintain our competitive edge, our efficiency, and reduce greenhouse gases from freight by intermodal and modal ships if we can and where we can. Some of these, such as the building of these inland ports, address that issue.

Trucking and rail compete but we also realize that they need each other in terms of the transportation system as a whole. There are incentives that are out there and that is a question the governments have to decide. How much money are they willing to put out to improve the infrastructure? What kind of incentives are they ready to provide because the margin under which some of these trucking firms work is very, very low?

That is one of the issues we have had with the Mexican-United States trucking issue but part of the reaction in the union movement in the United States is to protect independent drivers, who make approximately twenty-eight thousand dollars a year driving ten to fifteen hours a day.

So we have some major issues with the way market forces work and for sure the issue of intermodal is something we tried to address in the report.

MR. HILL: I might also add, when you look at the auto sector, you make a great point, but again to make an automobile takes thousands of parts coming from hundreds, if not thousands, of smaller companies that feed into that one central location. So it does not make any sense to have a thousand rail lines coming from all sorts of different directions.

However, when General Motors or Chrysler builds engines in Mexico and installs them into motor vehicles in Sterling Heights, Michigan there is a train that comes directly from Mexico loaded up with engines and then those cars are built. The cars are put on the train, taken to a central location, and distributed.

It is an intermodal effect: that rail is used where it makes the most sense and then trucks used to do the micro-distribution of things.

MR. TEITELBAUM: The last mile.

MR. HILL: The last mile, right.

MR. CRANE: Question. I share, Jim, your views on electric vehicles. I think we are betting heavily on the technology that will not go. I was a bit concerned about what seemed to be a dismissive view of hydrogen fuel cells. I was struck by two things. One is the Obama Administration tried to slash

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227 See id.
230 See id.
231 See id.
232 See id.
support for fuel cell research and development but it was the automobile companies that mounted a very strong campaign to get that funding.\textsuperscript{233} The auto industry seems to still be pursuing that option quite heavily.\textsuperscript{234}

When the National Academy of Sciences reviewed what is now called “next generation vehicles” or “future generation,” it emphasized the importance of maintaining the investment in the hydrogen program because it still saw that as a longer-term possibility; that if we have electric vehicles, it is a transition kind of thing.\textsuperscript{235}

My question, though, has to do with the price of oil going over a hundred dollars a barrel and does it make sense to have these global supply chains?

What I did not hear was what difference that additional cost for the price of oil really makes to the price of the final delivered product of the component. In other words, if you are shipping electric cable systems of cars in China, the price of oil goes up, and how much does that affect the price of what you are importing from China? Is it five percent or three percent of the cost? What does it amount to?

MR. HILL: One of the reasons that we have seen production moving off-shore is to reduce the cost of labor going in to make a motor vehicle.\textsuperscript{236} The percentage of labor cost of building an entire automobile is less than ten percent.\textsuperscript{237} We started to say that does not make sense because maybe we will save a little bit on labor, but we are only going to knock off a percentage or two. Eighty-five percent of the cost is procuring parts for the vehicle and the transport is cooked into that.\textsuperscript{238}

I do not know what to pull out as just the transportation component. I know on a piece by piece basis that sometimes it does make sense because somebody somewhere has developed a process that can make vehicles unbelievably cheap.\textsuperscript{239}

Some of the suppliers that we know prefer to have two or three locations globally and ship everywhere else because that is the cheapest way to scale up an enormous plant making these things. In some cases it does make sense.


\textsuperscript{234} See id.


\textsuperscript{236} See id.

\textsuperscript{237} David Morgan, The True Price of Auto Labor Costs, CBS NEWS (Mar. 30, 2009, 1:02 PM), http://www.cbsnews.com/stories/2008/12/19/business/main4677571.shtml (stating the United Auto Workers reports labor costs about ten percent of the total cost of producing a vehicle).

\textsuperscript{238} See id.

\textsuperscript{239} See id.
and I am not saying you just cut the umbilical cord completely. What I am talking about are key components to motor vehicles. It makes no sense to have one plant in Japan making sixty percent of the microchips that are used globally by industries in one location. The auto industry is a huge consumer of these microchips and so why are we not making them here?

Back to your other point, though, and I am sorry if I was dismissive about fuel cells, I do think fuel cells have an enormous potential. My point was the Department of Energy and the Obama Administration picks a technology. Remember that I started out saying, believe it or not, the politicians are not the smartest group of people. They are not the ones to go and pick a technology. What they should do is give a goal for energy efficiency and reduction of emissions. The private sector company may go out there and the government will enable it but will not tell the private company which technology to use. I think fuel cells are fabulous.

My point is we are spending billions and billions and billions building up a battery structure for one percent of the market. What is not being invested in are fuel cells, diesel, and compressed natural gas. You are absolutely right. When the Obama Administration zeroed it out—and the Bush Administration had a lot of funding going toward development of fuel cells—Honda, for one, led the charge on that because is does have some prototype fuel cell vehicles that are on the road in California right now.

Fuel cells are ten years out because the cost of it is kind of like fuel exploration. There is always a twenty year supply of fuel because it makes sense. There is not a thirty year supply of fuel because the cost structure does not make enough sense to go and find thirty years’ worth of supply. But as the twenty year supply goes down to ten and the cost of fuel goes up, we start digging in the ground and exploring for more, and lo and behold, we find more fuel.

Same thing here. If we invest in fuel cells more and more, we are going to get some return on it finally but right now it is a million dollars for a car

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240 Plungis & Keane, supra note 233.
241 See id.
244 NAT’L ACADEMY OF SCIENCES, supra note 235, at 8.
245 See id.
246 See id.
with a fuel cell in it. So are you going to buy that or are you going to buy a Cruiser built down in Lordstown for fifteen or eighteen thousand dollars?

MR. SANDS: We are talking about lead times and there is a lead time for the next panel. Thanks very much to our panels. They have been terrific.

247 See Bettencourt, supra note 243.