UNITED STATES DEPARTMENT OF ENERGY

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QUADRENNIAL ENERGY REVIEW

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PUBLIC STAKEHOLDER MEETING

Friday, August 8, 2014

University of Illinois-Chicago

Student Center East-Illinois B Room

750 South Halsted Street

Chicago, Illinois

UNITED STATES DEPARTMENT OF ENERGY

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The following pages constitute the proceedings held in the above-captioned matter at the University of Illinois-Chicago, Student Center East-Illinois B Room, 750 South Halsted Street, Chicago, Illinois beginning at approximately 8:30 a.m. with Dr. Frederick Hansen as Moderator.

A P P E A R A N C E S

FREDERICK HANSEN, Ph.D., Mediator

US Department of Energy:

MELANIE KENDERDINE
WILLIAM F. HEDERMAN
JOHN RICHARDS

Introductory Speakers:

RAHM EMANUEL, City of Chicago Mayor
JO-ELLEN DARCY, Assistant Secretary of the Army

(Civil Works)

JOHN HOLDREN, Director, President's Office of Science and Technology Policy
ANTHONY FOXX, Secretary of Transportation
ERNEST MONIZ, Secretary of Energy

Panel 1:

ERNIE PERRY, Ph.D., MAFC
HENRI BOULET, LA-1 Coalition
WAYNE ECKERLE, Ph.D., Cummins, Inc.
CHRIS SMITH, AASHTO
CASEY DINGES, ASCE

Panel 2:

SEAN CRAIG, Dairyland Power Cooperative
JOHN GRAY, AAR
DAVE WANNER, WPS
REBECKAH SCHEINFELD, Chicago DOT
JOHN BIRGE, Ph.D., University of Chicago Booth School of Business

A P P E A R A N C E S (Cont'd.)

Panel 3:

MARTY HETTEL, AEP River Operations
MATT WOODRUFF, Kirby Corporation
KEVIN SCHOEBEN, Illinois DOT
MICHAEL FORDE, Illinois International Port District
CARL BENTZEL, DCI Group

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P R O C E E D I N G S

DR. HANSEN: Good morning. I'd like to officially call this meeting to order. My name is Fred Hansen; I'll be the moderator for today. I'd like to begin with a prepared statement.

Pursuant to the Federal Advisory Committee Act, the purpose of today's meeting is to ask for your input or your organization's input regarding the multimodal infrastructure, and provide a forum for the exchange of information. To that end, it would be most helpful to us for you to provide these recommendations and information based on your personal experience, your individual advice, information or facts regarding these topics. The object of the session is not to obtain any group position or consensus; rather, the US Department of Energy is seeking as many recommendations as possible from all individuals at this meeting.

It is now my pleasure to introduce Melanie Kenderdine. She is Senior Advisor to the Secretary of Energy, and Director for the DOE

Office of Energy Policy and Systems Analysis. In July of this year, Ms. Kenderdine was named one of the top five women in Washington shaping energy policy by the National Advisor. Ms. Kenderdine?

MS. KENDERDINE: Actually, National Journal. Thank you all for coming today. And we are seeking, as noted, input into the QER. We are going across the country. My office is organizing these meetings. I extend a special thank you to the staff; they've done a great job. They are very focused on getting both geographic and sectoral input into the quadrennial energy review. I'm not going to say anything about that, the Secretary is going to talk about that, excuse me, Secretary Moniz, we have two Secretaries here. Secretary Moniz will talk about the QER in a minute as will Dr. Holdren.

It's my pleasure today to introduce you to Rahm Emanuel, the 55th Mayor of Chicago among many things. You can read his bio in your packets, but he is focused on education and infrastructure investment and rail safety. I

think he's going to say a little bit about rail safety. These are a couple of topics, infrastructure and rail safety, that we're going to focus on today.

I have had personal experience with Rahm Emanuel. We are both members of the Clinton administration diaspora. He became the Mayor of Chicago and I am introducing him, but I did meet with him. I worked for the Gas Technology Institute up the street here in Illinois. I started my pitch, he said what is the bottom line, get to the bottom line. And the bottom line was I was seeking support for unconventional oil and gas research money. He gave his support to that, and so I think we can give him partial credit for the oil shale gas development that we're seeing here in the country today. And he is helping manage some of the problems that we are seeing as a result of that dramatic increase in production.

He was true to form in the meeting I had with him, and I'm going to quote his own words and they were precisely what he said to me, "Put your

points on the board. Show people you can govern and deliver on what you said you are going to deliver on." And so, ladies and gentlemen, I'd like to introduce you to Mayor Rahm Emanuel.

(Applause.)

MAYOR EMANUEL: I don't know about the rest of you, when she says I'm going to quote him directly I took a deep breath. I was like, Melanie, there's cameras, don't, yes, this is a family friendly conference, please, don't do that to me.

First of all, I want to thank everybody for being here. I want to thank both Secretary Foxx, all the Secretaries, Secretary of Energy Moniz here, also Jo-Ellen Darcy from the Army. I can't think of a better time and place to have this meeting. I always describe Chicago as the inland port of America. If it runs on runways, rails or roads, it comes in and out of Chicago, and based on weather sometimes we just don't let it out of Chicago, but it definitely comes in here.

And we are the transportation hub of America and the intermodal capacity that is both an advantage but it also means that when it comes to national policy we have a direct stake in what's decided. It actually impacts the quality of life we have in our neighborhoods and communities throughout the City of Chicago. And by way of context, on any given day, there's around 500 freight trains that come through the City of Chicago. I joke sometimes it takes three days to get a freight train from New York to Chicago, three days to go from Chicago to L.A., and three days to go from the northwest side and the southwest side through Chicago.

But that said, we have a direct stake in this conference, and a direct stake in the policy recommendations because where you see that rail through the city and when it's 500 railcars coming through, not all of it carrying hazardous material, but a lot of it now because of change is carrying oil, gas and other types of materials. And so, what's happening on this discussion,

what's happening with this conference, directly impacts the communities' first responders and how we actually develop.

I do want to call out Secretary Foxx for his report the other day and recommendations for the industry as a down payment. Simply said, we have actually a new energy and new transportation context happening in the country right now. We're in the early stages, first year of that process. It calls out, therefore, for a refreshed look at the policy as the Secretary did just the other day.

Now, I have been a long-time advocate since that change. And I do want to say one thing, Melanie, I do believe in the research and development, all the economic and other informed policy and national security advantages with the energy freedom that's emerged. But that doesn't mean you take a backseat as it relates to the investments and changing policy that if it's going to change the context, what other things do we have to do to stay at par and equal so everybody

benefits and nobody gets hurt.

Now, I do think what happened in Quebec is a wakeup call. I just told you that there's 500 trains around on a daily basis, comes in and out of the City of Chicago, our neighborhoods, our communities, in that area. Now, as I said earlier as we were talking to both the Secretaries and going over data, this is not a hard number. But those rail tracks, 430 primary schools within a half mile, 90 high schools within a half mile, 30 colleges and universities within a half mile. We're on summer break, 300 parks and playgrounds within a half mile.

If we do not do what we need to do as those in public office, allow the industries to take the steps they need to from an advantage both on environmental policy and on energy policy, but then do the investments we need to do, because I will tell you, God forbid something happens, the first people that will be responding will be the police and fire department of the City of Chicago. The federal government will be there in about 48

hours. Where are the resources to do the training? We're a big city.

Obviously, this impacts also medium and small cities. So, where are the resources to train your first responders to deal with a different type of context besides a high-rise fire, an apartment fire, or a situation on the street, given all the schools and parks and universities I just mentioned? Given that the rail, both cargo intersects here in the City of Chicago with commuter rail, I am a firm believer and I just want to stress this, there should be a fee that allows the setup of pool of dollars to both train the police and fire and first responders of the communities that are directly impacted, and also to upgrade the infrastructure from a security standpoint to ensure that you have a modernized rail system that lowers the threat of the rail that is carrying this material.

What Secretary Foxx recommended just about a month ago I strongly support, not as the end but as the beginning of a process to begin to

make sure that on a policy level, that we are doing everything we need to, to stay up with where the industry is going from both energy and transportation standpoint. And it's essential for our communities, our neighborhoods and our families that live near this increasing rail traffic of material.

So, I want to welcome all the participants in the conference, welcome everybody that's here. I think this is a fitting time. I can say this as a mayor who has participated with other mayors, big and small, this is an issue pressing across the country for mayors. And the report coming out of here as we do the quadrennial review is not one to sit on the shelf and gather dust but is a call to action based on the recommendations to help our communities not become as vulnerable as they are today to what's happening in their own backyard.

And I want to thank again the conference being here. And in conjunction with that, just as by way, whether it's oil and gas carried on rail,

we also today as a city announced a cease and desist order to those that are operating storage facilities on the southeast side of the City of Chicago not in compliance with the protections that we have for every child and every community in the City of Chicago. And again, it's part and parcel of the strategy to make sure that our regulations and our oversight as it relates to public health and public safety is consistent with where the industry and the economy are going and that our communities are not made vulnerable to changes going on in the economy overall.

Again, thank you for this time and thank you for having the conference here.

(Applause.)

MS. KENDERDINE: Thank you, Mr. Mayor. I worked at the Department of Energy the entire eight years of the Clinton administration doing fundamentally what I'm doing now, and never thought, when I came back into the department, that I would be so focused on oil transport by rail and oil transport by barge. And the energy

space has changed so dramatically just over the last few years that it is a very, very different infrastructure that we are looking at today. And part of what we are doing in the QER is working to address the precise issues that you raised, Mayor Emanuel.

And the next person I'm going to introduce is Assistant Secretary Jo-Ellen Darcy. She is the Assistant Secretary of the Army for Civil Works, Corps of Engineers. And Mayor Emanuel talked largely about rail. The Corps of Engineers is responsible for inland waterways. When we look at all of these energy infrastructures, most of them are in the hands of the private sector. The inland waterways actually are a significant federal responsibility, and so we are very interested in hearing from the Corps of Engineers and I think they need a lot of support and help on modernizing those inland waterways with the dramatic increases in energy being transported by barge, particularly oil.

And so, Jo-Ellen comes to the Department

of Defense and the Corps of Engineers from Capitol Hill where she was the senior environmental advisor to the Senate Finance Committee and had many, many positions on Hill prior to that doing significant energy and environmental work and policy work. So, Jo-Ellen Darcy. Thank you.

(Applause.)

ASST. SECRETARY DARCY: Thank you, Melanie. And thanks, everybody, for inviting me to be part of today's quadrennial session. This is the first time I've been able to participate, so I'm looking forward to that.

And I also want to emphasize one thing that the Mayor talked about, rails and runways and roads. And Secretary Foxx and I always talk about those three R's, but I'm here to talk about the fourth R which is rivers. So, we want that to be part of any conversation about transportation and the future of this infrastructure because it's incredibly important to the vitality of this economy in this country.

A little bit about the Corps of

Engineers. We're responsible for the development as well as the protection and restoration of our nation's water resources, including commercial navigation as well as flood risk management, environmental restoration. We provide hydroelectric power, recreation, as well as municipal and industrial water supply. Also, in addition to that, the Civil Works Program has an important regulatory mission. The Corps is responsible for permitting construction in all of the navigable waters and as well as the disposition of dredged and fill materials into the waters of the United States including all of our wetlands.

Together with some of the other federal agencies, we are working to improve the performance of our agency and others on the federal permitting and review of our infrastructure projects. As part of this work in support of President Obama's executive order on infrastructure which he issued on March of 2012, the Army Corps of Engineers is currently listing

eight projects on what's called the President's Dashboard for increased permitting synchronization as well as delivery to our customers. We've completed six of those eight projects. One of them is the East Saint Louis levies here in Illinois as well as projects around the country including hydroelectric projects.

We've also participated in interagency efforts to develop an implementation plan for President Obama's memo for modernizing our infrastructure permitting, and that was released in May of this year. And one important component of this effort has been advanced through a partnership with the Department of Transportation as well as the Coast Guard and the Corps of Engineers. And what we're doing is looking at all of the requirements for NEPA under federal environmental law, and we're trying to be more efficient with our customers so we're trying to synchronize the requirements for the Corps of Engineers, for the Coast Guard, as well as transportation and permitting future projects,

especially our bridge projects.

And we collaborated with DOT in New York-New Jersey Harbor, and a couple of months ago the President came to see the progress that was made because of this collaboration at the Tappan Zee Bridge because we're doing work on the Tappan Zee Bridge in coordination with the deepening of the New York-New Jersey Harbor. So, that effort is an example of how the President's initiative on permitting is working.

The Inland Maritime Transportation System of this country, as you all know, has a vital role in our economy. It enables the movement of over 565 million tons of commodities which is about $180 billion worth of money. The Corps of Engineers is responsible for operating and maintaining about 12,000 miles of inland and coastal waterways. And we've always played a major role in our nation's marine transportation system as well as managing all those water resources.

About 57 percent of the tonnage that's

moved on the water is coal and coke and petroleum products which fuel our country. And these commodities' movements are often for hundreds of miles from their origin to their destination, and many of them have to traverse over 20 different lock sites on the inland maritime system which are owned and operated by the Army Corps of Engineers.

Transporting these products, as you know, is much less expensive than land or air-based transportation. A gallon of fuel for inland towing can carry a ton of cargo 576 miles. That same gallon of fuel on rail would carry 1 ton 413 miles. And if you put it on a truck, that same fuel will take that ton only 155 miles. So, keeping the traffic on our inland waterway system efficient and deliverable is incredibly important not only to the economy but also to our energy consumption.

In 2010, the Corps of Engineers, for the first time, completed what we call our operational assessment. We looked at all of the assets that are associated with the inland maritime system

that we own and operate. We looked at 160,000 different components on this system and, for the first time, we now have a handle on and we know the condition of all of those components. And about two-thirds of them we've determined to be mission critical, and what that means is that a failure of these components would adversely impact our ability to move commercial navigation traffic through the locks in order to maintain our navigation pool and to keep our dams operating as well.

So, despite the fact that about 60 percent of our lock chambers on the inland maritime system are about 50 years old, a large percentage of our mission critical components show us that this is just basic wear and tear. But, however, we have to continue to invest funds for maintenance of these components because, as I said, any failure of those components will impact every transportation system because it is a connected system throughout the inland waterways system.

And the President has determined that this is a critical component, and I think part of that is demonstrated by his initiation of a ports task force that I serve on with other members of the Cabinet in order to determine what we should look for to the future as far as having a port strategy for the nation. We have to look at not only our inland navigation system but the expansion of the Panama Canal which is going to bring larger ships into our ports, and how we are going to be able to be competitive worldwide with those expansions. The President's task force initiative on ports hopefully will have some recommendations this year, but also by the value of the amount of product that's shipped on our inland waterways, about $1.4 trillion moved through our core constructed dams and locks in 2010, so that's a great deal of economy that we need to be able to ensure is going to be there in the future.

With all of the transportation issues, we also need to continue to monitor and improve

our environmental impacts on our waterways. We, in the Corps of Engineers, again as part of President Obama's sustainability initiative, have set goals for ourselves to reduce our energy consumption. What we have done is we have made a commitment to increase our renewable electricity consumption to 20 percent of our agency's total energy consumption, and also to reduce our greenhouse gas emissions by 23 percent, all by 2020. These targets address greenhouse gas emissions for our daily operations at our core facilities as well as our vehicles and our vehicles.

The Corps of Engineers also, you may or may not know, not only are we the largest provider of outdoor water-based recreation in the country with 370 million visitors a year, but we are also the largest operator of hydroelectric power plants in the US. We have 75 plants with a total install capacity of over 20,000 megawatts, and we produce about 100 million kilowatt hours a year. This is nearly a third of this country's total hydropower

output and it's enough energy to serve about 10 million households, or roughly ten cities the size of Seattle. So, we are a great contributor to this. And the greatest benefit from this hydropower program of course not only is the abundant low-cost energy for the products, but also we are operating them within, so we are immune from the price increases from fossil fuels.

We also do part of this operation in collaboration with both the Department of Energy and a lot of our local sponsors. And because of the advantage of this hydropower source, we're going to continue to play an important role in meeting the energy needs in the years to come. We've had, part of I think in looking forward, I mentioned earlier the collaboration with both the Department of Transportation and the Coast Guard, and I think those kinds of efforts are going to yield great results in the future because we're finding that not only in synchronizing and streamlining our permitting process are we getting projects underway earlier which is always cost

effective, but we are also looking at greener ways in order to do that as well.

So, I'm interested in hearing what these quadrennial review meetings will produce. I know Melanie has said that a lot has been learned from them, and with the 15 going on around the country, I think that's going to be a great resource for us as policy makers to help educate us for the future of what it is we need to do in order to be sustainable, not only economy but also energy-wise. So, I thank you for having me here today and I love being in Chicago. Thank you.

(Applause.)

MS. KENDERDINE: Thank you. I love being in Chicago, too. It's now my pleasure to introduce you to Dr. John Holdren. He is the Assistant to the President for Science and Technology. He's the President's science advisor. He is the Director of the Office of Science and Technology Policy and the co-chair of the President's Council of Advisors on Science and Technology (PCAST). He is a world class

scientist, was on the faculty at Harvard and Berkeley.

Importantly, in his role as co-chair of PCAST, in November 2010, he and then Professor Moniz worked on a study that recommended that the federal government do a quadrennial energy review and with an emphasis on making policy recommendations that were rigorously developed and were based on sound data and information. And based on that recommendation, the President issued a Presidential Memorandum this year. And in that memorandum, this is a White House-led process; Dr. Holdren is co-chair of the task force on the quadrennial energy review along with Dan Utech with the Domestic Policy Council.

Dr. Holdren has been an innovator, an instigator, and an inspiration for the QER. Coming over from the airport last night, we dropped Dr. Holdren off at his hotel and went on to ours, and I said to Secretary Moniz, what an incredible supporter he has been of this compressed but important effort. And so, we

appreciate all he has done including being the inspiration for this. Let me introduce you to Dr. Holdren here, thank you.

(Applause.)

DR. HOLDREN: Well, thank you very much, Melanie. And let me start by adding my welcome to those you've already heard to this eighth regional stakeholder meeting in the quadrennial energy review. And I also want to convey greetings from President Obama who I can assure you is following this process very closely. And I want to thank all of my colleagues up here on the dais and particularly Mayor Rahm Emanuel for making time to be with us this morning.

I'm going to step back from the specifics offered by Assistant Secretary Darcy and say a few words from the 30,000 foot view of the quadrennial energy review. President Obama's energy vision is one where affordable, clean and secure energy contributes to a very wide range of national goals. One set of those goals of course involves economic growth, competitiveness and job

creation. Another one involves protecting our environment, and perhaps most challenging within that space, protecting the global climate. And another of course is contributing to US national and homeland security.

Achieving that vision and those goals requires a comprehensive and an integrated energy strategy, and that's what the QER is designed to help achieve. The QER process is built in fact on three pillars. One is strong technical analysis led by the group in the Department of Energy, led by Melanie Kenderdine. A second pillar is strong contributions and interactions among the many federal agencies that also have stakes and responsibilities in the energy domain even beyond those of the Department of Energy. And as Melanie has mentioned, that entails an interagency process that I co-lead from the White House. And in fact, you can get the multi-agency character of the QER just looking at the folks up here on the dais where we have the Secretary of Transportation, the Secretary of Energy, the head of the Army Corps of

Engineers, along with the Mayor of Chicago. The third pillar is active engagement of external stakeholders, and that's what this series of regional stakeholder meetings is all about.

Those of us who ultimately will have the responsibility of writing up the quadrennial energy review for the President are going to learn a lot from the presentations that are going to follow this morning. Some of us are going to have to leave early and will not hear those presentations live, but they are being recorded, and I can assure you that we'll give them careful attention going forward. We've learned a lot from the previous stakeholder sessions in this series and I'm sure we're going to learn a lot from this one.

The focus, as you've already heard, for the QER in its first year is the nation's infrastructure for transporting, transmitting, storing and delivering energy. And I do want to stress that quadrennial does not mean that something happens only once every four years. The

QER is structured to have what we call a moving spotlight approach where we look at a different set of issues each year, and the spotlight for the first year is this set of infrastructure issues.

That infrastructure is increasingly being subjected to rapid changes, new stresses, new demands from a variety of forces. And the first of those forces is the changing physical flow of energy commodities in the United States. Our transportation infrastructure has evolved in part in response to past patterns of where we've produced the raw materials for energy system and where those materials have been consumed. And those patterns and flows have been changing rapidly in the last few years as the development of new sources of energy and the introduction of new energy technologies have shifted demands and patterns of energy supply and transport.

Second major factor is that US population growth and regional migration trends have caused concurrent shifts in the shipment of many non-energy goods by highway, rail, and

waterways. The energy uses of our transportation infrastructure have to compete with these other demands for the same infrastructure. And the third factor is the new set of demands and challenges that are being placed on the transportation system by our growing concerns about global climate change. That includes not only policies aimed at mitigating transportation's greenhouse gas emissions and energy consumption, it also includes policies and practices for adapting the transportation system to changes in patterns of temperature, patterns of precipitation, flooding, storm surges, wind loadings, that are already occurring and will continue in the future as a result of global climate change.

An overarching issue that adds complexity to the whole domain is the diversity of the array of decision makers and stakeholders who have to deal with it. State transportation planners, railroad folks, barge operators, trucking firms, oil and gas producers, refineries,

farmers, ethanol manufacturers, electric power plant operators, industrial consumers, environmental regulators are just some of the constituencies that play important roles in this domain. And while those diverse stakeholders often act independently and sometimes have goals that are in tension with each other, the impacts of the individual decisions that they make are all intertwined.

So, this is a big challenge. And given this extraordinarily complex and extraordinarily coupled nature of energy and transportation systems, it's I think particularly important that we take a clear look at where the most urgent questions in each of the major modes of transportation are. That is going to be the task of the three panels today on highway transportation, rail transportation, and transportation along our national waterways and coasts.

I am pleased that key members of the agency and White House staff working on the QER

are going to be able to learn first-hand today from the distinguished experts covering these topics. I look forward to the opportunity of studying what these folks have to say in greater detail and learning from it. And with that, let me turn it back to Melanie.

(Applause.)

MS. KENDERDINE: Thank you so much, John. Now, I'm going to introduce you to Secretary Anthony Foxx. Secretary Foxx is the 17th US Secretary of Transportation. He was sworn in on July 2nd, 2013. Prior to that, he was the mayor of Charlotte, North Carolina where he spent a lot of his time as mayor working on trains, planes, and automobiles, according to his bio, focused on light rail. He expanded the Charlotte Douglas International Airport. I did not know when I read you bio that that was the sixth largest busiest airport in the country, maybe the world. World, yes, bigger, yes, yes. And that's what it said in the bio.

And before that, he was on the city

council attorney, you can read his bio, and I would say a couple of things. Our staffs have been working very closely together, DOE and DOT. Dr. Holdren mentioned the interagency nature of the QER. There are enormous equities in all of the agencies and energy and so we have been working with his staff on rail safety, pipeline issues, vehicle miles traveled, et cetera, et cetera. All of these pieces are very important for the final QER.

And then I would note one more thing. This is of significant interest to frequent flyers everywhere. Secretary Foxx persuaded the FAA to ease restrictions on electronic devices on airplanes. And that's really important to me. I suspect it's important to a lot of people in the room. Thank you, Secretary Foxx. And without further ado, let's give a hand to Secretary Foxx.

(Applause.)

SECRETARY FOXX: Thank you, Melanie, and good morning everyone. It is occasionally an opportunity for me as the US Secretary of

Transportation to deliver good news, and it was indeed a good day for us when we were able to allow you to turn your iPads and other things on airplanes. It is equally part of my job to sometimes be a bit of a wet blanket on what is otherwise a very good story. And before I get into the meat of what I have to say today, I do want to recognize my colleague, Secretary Ernie Moniz and his department for really doing such a great job in standing up this quadrennial energy review. And my thanks as well to Dr. Holdren who, I think you've already gotten a glimpse of why all of us within the administration stop and put our pens down when he talks because he is someone who comes with an incredible amount of knowledge and insight on these issues, as well as Jo-Ellen Darcy from the Army Corps of Engineers, and of course Melanie.

One word about your mayor. I served as a mayor with Mayor Emanuel. And he has given voice on these issues for a lot of mayors who do share concerns about the challenges of ensuring

safety in the transmission of energy around this country. And so, Mayor, I want to thank you so much for your leadership on those issues as well.

Now, I don't think it's news to anyone that the dramatic spike in domestic energy production is a huge opportunity for the US. It is in fact, in some corners, known as a game changer in the US, clearly as a positive development for our economy and for developing the kind of energy independence Americans have longed for for many, many years. But with this greater production comes greater responsibilities. And we have a responsibility to the City of Chicago, to the State of Illinois, to the entire country to ensure that as we ramp up production of energy in new places, that we have a regime of safety that is consistent with the standards that we have set in this country for years.

Chicago, in fact, as the Mayor said, is the freight hub of the country, placing this city at the center of transporting this new energy. And as it stands, there are capacity issues in

that network that need to be addressed; in addition to that, repairs and upgrades that need to happen. And that's why, at DOT, we are promoting a national freight plan, first of its kind initiative to dramatically ramp up our investment as a country in the ability of goods to move from one place to another in this country. That's really important because, as Dr. Holdren has said, the sheer volume of freight moving in this country, energy related and non-energy related, is starting to create bottlenecks in the system. And as we try to deal with some of the safety issues on the energy side of that, that creates complications if we don't have more capacity.

And so, I want to put a little plug in here for our administration's effort to do this through the Grow America Act, our transportation bill. That would dramatically increase and create a national freight strategy, a national freight plan, and the funding to implement that plan, $10 billion over four years to do improvements to our

rails, to our roads, to our ports, to our inland ports and waterways, so that we can more efficiently move freight around the country. And as I've said, everything we do at USDOT, the undercurrent of everything we do is safety. That's our north star and it's something that all of us want to work to ensure.

Now, in Chicago, you're seeing significantly more crude and gas moving through your network, and this energy is traveling in a variety of ways by truck, by rail, by barge. And again, as that increased movement of these materials begins, we have to raise the bar on safety. At DOT, we've taken more than two dozen steps just over the last year to make sure that we are improving the ways in which all of this material moves through our country.

And just parenthetically, I took the oath of office as US Secretary of Transportation on July 2nd, 2013. Lac-Megantic happened on July 6th. So, I've been dealing with this issue and the concerns around it virtually the entire time

I've been Secretary of Transportation.

The domestic maritime industry is building tank barges at record rates to move energy products. And our administration, being a strong supporter of the Jones Act which promotes a strong US flag fleet and enhances safety, will continue to work with the maritime industry to ensure that the assets are in place to safely transport crude oil and other products by barge.

But let me say this, the rail, the increase in transport by rail has significantly increased in just the last five or six years. In fact, we've seen the biggest increase in the trafficking of crude by transportation through rail, and much of that has happened in the North Dakota-Bakken region. We know through our ongoing testing program called Operation Classification that Bakken crude is on the high end of volatility compared to other forms of crude oil. We also know that production in the Bakken region has skyrocketed.

And this is an alarming figure, more

than 4,000 percent increase in rail carloads just since 2008, 4,000 percent! And this is why we recently issued a rulemaking proposal to improve the safe transportation of large quantities of flammable materials by rail, particularly crude oil and ethanol. I want to just spend a brief moment talking to you about the details of that proposal.

Our rulemaking proposes to enhance tank car standards. Specifically, it phases out the use of older DOT 111 tank cars for shipments of packing group 1, flammable liquids, including most crude oil within two years. It also sets the stage to improve design requirements for tank cars built after October 1st of next year by proposing, among other things, thicker, more puncture-resistant shells, and other safety features like enhanced braking and rollover protection.

We're proposing to require a higher standard for classifying and testing mine gases and liquids, including most crude oil. We are also proposing new operational requirements for

trains carrying 20 or more carloads of flammable liquids like restricting speeds and doing risk assessments of routes and notifying state emergency response commissions to ensure first responders in those states will be prepared to respond in the event of an all train emergency.

Our proposal is now open for public comment. And I've asked our stakeholders to comment within the 60-day period. Sometimes in these rulemakings, you've extended those periods beyond 60 days. Our intention is not to extend this comment period, so we're really hoping that folks who have something to say about this will respond within the 60-day period because we realize the urgency of getting to a final rule.

Because this is an urgent issue, again we're not going to extend the deadline. But let me say again, I want to thank everyone for participating in this QER meeting. As America continues to go on the upward trajectory towards energy independence and being the world leader in energy production, I think all of us feel that we

have a concomitant responsibility to ensure that we're setting the world pace for safety in the transportation of energy. Thank you very much.

(Applause.)

MS. KENDERDINE: Thank you, Secretary Foxx. And I did work in the Clinton administration at the Department of Energy for eight years. Secretary Pena went from being the Secretary of Transportation to being the Secretary of Energy. I got to work with Secretary Pena as well. I won't divulge, out of deference to the two Secretaries at the table, I won't divulge what Secretary Pena said about which job he liked better, but he did certainly recognize talent when he saw it.

Secretary Pena had worked with now Secretary Moniz when Secretary Moniz was at the White House in the Office of Science and Technology Policy, sought him out and brought him over to the Department of Energy. I think he'd already gone back to MIT at that time, brought him over to the Department of Energy as the

Undersecretary at DOE. At that point in time, there was only one undersecretary position, we now have four. Secretary Moniz did an incredible job then.

He, like Dr. Holdren, is a fabulous scientist. He was on the faculty of MIT for 40 years. I've had the pleasure to work with him off and on for 17 years and was with him at MIT for six and a half years where we did very rigorous studies, multiyear, multidisciplinary studies, future of natural gas, future of coal, future of nuclear power, et cetera, et cetera. He is very, very committed to rigorous database policy analysis and was on the PCAST group that recommended we do a QER.

And so, he's pushing me off the stage. He must have a lot of important things to say or we have to leave. Go ahead.

SECRETARY MONIZ: Good, thank you, Melanie. As John said, her office is really on the point in terms of the analytical approach to the QER, and it's a huge job and being done quite

professionally. A lot has already been said about why we're here, so I'll just try to be more idiosyncratic in making a few points.

But first, I want to say it's great to be back in Chicago where I was a couple of months ago with the Mayor. And in that event in particular, there were I would say three threads of the discussion: clean energy, innovation where we were able to support an incubator here for energy technology, but also capacity building and particular minority education. And those were three threads that the Mayor has emphasized very importantly.

I might also add that, as demonstrated by Secretary Foxx today and by me a few months ago, it's hard to get out of here without one less check in the checkbook when we come to Chicago, but doing a great job, which then again to Anthony Foxx, a great colleague in the Cabinet. I might say one of the reasons for that is bringing that mayor's perspective. That brings a kind of grounded truth about the problems we have to

address. In fact, as we heard it from Rahm, how the large issues we're discussing today do come down to issues like safety in neighborhoods as also emphasized by Anthony. And we're buddies from everything from energy infrastructure to jazz; we're fans, so it's really great.

Also, Jo-Ellen, thank you, it does emphasize again the multi-agency aspect, but I just can't emphasize enough the importance of our collaboration with the military and especially the Army Corps of Engineers in this case. She mentioned hydro. Another example I would say is the emphasis that we will be giving to, with the Corps, looking at small hydro as an area where we still have lots of opportunity to go forward.

And John Holdren, I'll just say that our relationship goes back into the mists of time in terms of our shared interest in energy and also national security issues.

Let me just say a few words and reemphasize some of the points made. First, in particular, the revolution in gas and oil

production in this country, we all know it's remarkable. We are the biggest producer of oil and gas. As the President said, it's not Russia, it's not Saudi Arabia, it's the United States of America now with our increase.

The geographical change in that production with shale gas now essentially half of our natural gas production, with shale oil literally growing by over a million barrels a day in one year is incredible, but that has produced, has a large ripple effect. Again, just to reemphasize, things like the Marcellus in Pennsylvania in that region, the Bakken in North Dakota in that region has changed things. We will use the flows of fuels north to south, some west to east. We have a lot of reversals of that.

And our infrastructure, just frankly, hasn't caught up completely to that, and that's why we're here today, especially here in Chicago, geographically located between Pennsylvania and North Dakota, a major transportation node. And so, here, we need to hear what is happening in

terms of challenges and what are the opportunities to address this, not only here but this is a great place to have this meeting.

I might just note, as an anecdote, that the ripple effects of this US production, while we will discuss them here in terms of energy infrastructure, just this week the President hosted really this historic US-Africa summit with almost 50 heads of state from Africa. We hear, I hear from say the Prime Minister of Algeria, for example, gee, we've lost a market, our decrease of imports is a decrease of their exports. And so, they are having to look for new markets for where their crude oil can go. So, this is a major, it's a global effect from what we're doing, but certainly we have this local issue if you like. So, that's really one of the major points, this question of the change and challenge to our infrastructure.

I might add, we did an activity earlier this year with our strategic petroleum reserve. We had to, we put out five million barrels to test

what would happen in an emergency precisely because we lost some certainty in terms of which way pipes would flow, how many maritime assets would be available for distribution. That report will soon be available, and I will just say that we learned some lessons and we have some issues to address going forward.

Another point. We have seen the challenge in infrastructure. One not mentioned today yet is the impacts of natural gas shortages. Certainly in an analogous meeting in New England, we heard about the challenges of getting gas there. And last winter, when the polar vortex came, natural gas prices were not the $4 we hear about, they went to $100 roughly speaking in the northeast. Infrastructure constraints.

And another one that was certainly very evident in this part of the country, the propane issues similarly with the polar vortex, and factors coming together that we had not anticipated frankly, such as the impact of a large corn crop. What does that mean? That means a lot

of propane for drying it. And so, this year, we are certainly continuing our focus on that.

But really, that brings us to a very important part of our quadrennial energy review is a regional focus, as we believe that the energy challenges including the infrastructure challenges, it's not one size fits all. We have a set of regionally based challenges, and that's why it's so important for us to get out into the country to these regions and get input from the panels for sure, as John said, but also from the public. And I want to emphasize, the input opportunity is not just today. Hopefully, today we will get that, but we will also stimulate further thinking and we are open to input in multimodal ways in terms of helping us with the path forward.

Specifically, we will have in the QER a set of regional fuel resiliency studies to look at how we can best prepare for impacts that may come from extreme weather, for example, which in fact brings us back to a theme that John Holdren

mentioned. And I would urge those of you who have not seen it, to look at our recent administration climate assessment report that really lays out the scientific basis for why we need to respond to the climate even as we respond to economic opportunity and economic need and as we respond to our security concerns.

The last point I'll mention is a very important part. It's in the QER but it's a broader issue as well. We have an outstanding energy data organization, the Energy Information Administration, but we know that as we look across the administration, we still have a lot to do in terms of gathering, understanding data. For example, I will mention that if you look at the Coast Guard and the Corps of Engineers, we may not have complete convergence on things like some of the environmental impacts of water transportation. So, we're going to be working on that as well in terms of making sure we get the best data and the best opportunities to communicate the data to, for example, governors and mayors who will need that

in terms of preparing for various unplanned eventualities.

So, that gives you a little bit of flavor of what we're doing. And I'd like to now turn it back so that we have at least a few minutes for having some Q&A. Thank you.

(Applause.)

DR. HANSEN: Okay. Are there any questions directed to any of our panelists? Yes, sir.

MR. PERKINS: My name is Tucker Perkins, and I do represent the propane industry so it's always a pleasure to hear the Secretary speak to propane. And we certainly believe that, as you talk about environmental benefits of greenhouse gases, that we can be a much bigger player in the energy market.

My question to you is really a two-part question. And first it's a complement. Certainly earlier this year --

MAYOR EMANUEL: Spend some time on that part. We like that. Expand it.

SECRETARY MONIZ: Yes, expand that part.

MAYOR EMANUEL: Just feel like you're a US Senator, go, let her rip.

MR. PERKINS: I wouldn't be up here. But I do want to compliment the Secretary and staff because certainly all of us in the propane industry really appreciate your efforts and staff's efforts to really, to address the issues you just talked about from last winter. As we look forward to next winter, we begin to see again a very large potential corn crop, concern about -- again and really begin to worry about straining the infrastructure, the exact infrastructure problem that we have with pipelines.

So, my question is really this. As a matter of really public safety and also to help consumers prepare, our efforts have been to really work with the consumers to see that they have a stockpile of inventories, and then also that we really replenish inventories throughout the country. Do you tend to agree that that's the right strategy for us? Or do you see other --

SECRETARY MONIZ: Thank you. I have to say, first of all, I think, you know, it's fair to say that the propane, really a crisis last winter I think taught a lot of people about the importance of propane in our economy. Secondly, thank you for the compliment. I want to say that it should be administration-wide. For example, my colleague here took actions in terms of some waivers on the transport side.

The point you raised about preparing for the winter is a critical one. Let me say that, for example, today in the Midwest, we do have a larger inventory than last year. We have had some fairly rapid fills in the last few weeks, but we're still below the five-year average. And as you said, Secretary Vilsack has pointed out to me directly that we may have a larger crop to come this year. So, we need to prepare.

I think the educational approach that you are talking about with the consumers is right on, spot on. We should be now filling our tanks, getting our inventories up. That's happening in

the Conway hub, but I think it's all the way down to the distribution chain and to the consumers as well. So, I want to thank you for pushing that kind of an education campaign.

We will want to work with you and your colleagues this winter. And I'll finish by saying; in fact, we are, at the EIA, they are for example providing new web-based tools on inventories, et cetera. They are also prepared, watching carefully inventories, to communicate directly with governors in particular in terms of early alerts, we hope, for challenges.

So, let's keep working together. Education, building up stocks is critical.

MR. PERKINS: Well, we certainly appreciate, and you are correct, the Department of Transportation has been wonderful for us, with hours of service and really a host of wide ranging alternatives.

But the second question really then is do you see what's happening with us, the propane industry, do you see parallels to that with other

parts of the energy infrastructure?

SECRETARY MONIZ: Well, again the last winter, as you well know, one of the factors was in fact the inability to move product, in this case, let's say from Texas where the big spread developed between the two hubs. And that is again, that is, yes, it's a common issue. I would say the New England natural gas situation you might say as well. It wasn't a question of not having supply in the country; it was the inability to move it when we needed to to the places that had major need.

So, yes, this is, it's a more endemic issue and that's why the QER is focused on infrastructure this year. So, thank you.

MR. PERKINS: Thank you. We do appreciate it and looking forward to working with you in the next 12 months. Thank you.

DR. HANSEN: Okay. We have time for one more question.

MR. BROCKSCHMIDT: Good morning. Ben Brockschmidt with the Illinois Chamber of

Commerce. This is mostly for Secretary Foxx and Mayor Emanuel. But as we're talking about this and I'm hearing all of you speak about, particularly about Illinois being the nexus of infrastructure, you know, how do you both see the role of your state and local governments playing into this national role? Because what I heard from all of you today was this is really a national opportunity, it's national growth, it's jobs that come here. But how do you see that relationship developing over time through public mediums such as this and additional input?

SECRETARY FOXX: Well, you know, I think, number one, part of what we're doing here in this setting is opening up the conversation about the need to address this issue in an intentional way, looking at the field of play so to speak, understanding that we have new pressures and old constraints that we've got to work through. And it's going to require everybody at every level to be vigilant about this.

So, for instance, our highway system is

basically a state system. We use federal money to help pay for it but the states are making a lot of the decisions about where the dollars go. And when it comes to the transport of energy products and the need for connections between states, we're going to need states to be thinking about this issue in the context of how they make decisions.

There's a lot of infrastructure that is privately owned, a lot of the freight rail networks around the country, a lot of the pipelines around the country. And as much as you would think that folks would be incentivized to build the capacity for the future, you know, I'm not sure the markets right now are incentivized in that way. There's a lot of using existing capacity and just trying to push as much as you can through it. But eventually, as has been pointed out before, you're going to start to see bottlenecks and huge amounts of congestion occur and the inability to get goods from one place to another.

So, I think as we go through this

process, part of what we're trying to tease out is what's the right level set in the public realm, what's the right set within the public realm at the federal level versus the state and local, and what's the right level set and risk analysis that the private sector should be going through as we work through these issues.

MAYOR EMANUEL: If it was a headline, it would just be I agree. But here's the thing. This energy revolution, as the Secretary said, has a worldwide impact; but on the other hand, it has a very local context. And it's a huge opportunity on a host of levels, not just the production of energy and the moving of energy which is the focus here. You're going to see a manufacturing renaissance because of the price of energy dropping and America becoming competitive.

With that, both other opportunities open up and other challenges. And we can't run away from this challenge, and the bottleneck is just one example at large of the challenge we have of having not invested in our infrastructure over the

years. It directly impacts I'd say the Metropolitan Chicago area, Chicago is my concern, because so much railroad, river, we're trying to turn our river obviously into a recreational space and not an industrial, that making it, we have to make certain investments if it's going to be done efficiently and done in a way that an urban setting like Chicago does not experience either downside but can participate in the upside of that transportation and distribution.

And that means setting the set of policies, and I want to echo one thing the Secretary said, and that is, the private sector is doing certain things, but without a partnership on the public sector side, the incentives are not in place to do it where every community can actually participate in the opportunities. And I'm just going to, I mean there is a downside which is we have to have a fee, and I want to emphasize this, national fee that allows you to invest in the first responders, but most importantly, modernize the infrastructure, diminish the threat. And that

is a great secondary job creator and economic opportunity from an efficiency standpoint. And by setting a national fee, you're not pitting one region against the other, and making the investments where everybody can gain from it.

SECRETARY MONIZ: If I could just add actually one other point, it's not directly in today's meeting on infrastructure for multimodal transportation, but going back to pipes if you like and the issue of cities, one of the major activities in administration right now which is discussed at a different QER meeting is methane emissions. And you've heard a lot about methane emissions from production, Bakken, et cetera. But there's a huge issue around pipes, transportation pipes, but also distribution pipes in urban environments.

And that's where what we can do is to facilitate what are ultimately, what the governors and mayors must do. And there's a lot of creativity going into this. But just to emphasize the Mayor's last point, it's interesting how

interests converge. When we have held roundtables, five roundtables on this issue including a recent one in the White House, and I might say John Holdren is central to this and in particular has responsibility for the data side, but we have environmental groups intensely interested for reducing greenhouse gas emissions. We have labor intensely interested because we need to rebuild this infrastructure. We have mayors interested, there's a safety issue as we have regrettably seen in some cases. We have industry interest because they've got to move product. And of course, we have regulator interest, how is the funding going to be captured.

So, multiple interests converge, and this is the chance to rebuild our infrastructure. I've got to tell you, especially I come from Boston, I cannot tell you how many century scale cast iron pipes we have that need to be replaced. So, it's really a great opportunity for us to come, and the point about needing this infrastructure investment is one the Mayor has

emphasized, it's one the President has pushed very, very hard.

DR. HANSEN: Okay. I'd like you to join me in expressing our appreciation to this panel.

(Applause.)

DR. HANSEN: Okay. I'd like to invite the panel, the first panel members to come up. And the rest of you, could you bear with us as we're sort of switching out here.

I just want to take this time to mention that the views expressed by the panel members are their own. They are not the views of the Department of Energy. Department of Energy is here to collect views and to listen.

(Pause.)

MR. HEDERMAN: Okay. I think we're ready to move on to this panel. And despite the principles of separation of church and state, it looks like you're sitting in church here, so feel free to move up a little bit.

This panel is designed to start to take this approach that the Mayor mentioned of public-

private partnership. And we have a distinguished group including persons involved in coalitions, both in the Midwest and in the Gulf Coast area. We've got a manufacturer who supplies goods to the trucking industry and will talk to that issue, the perspective of state officials, and also a professional researcher in the area of logistics. So, we'll let each of these experts make some comments first, and then we'll move into a discussion both among them and with questions from you.

So, I look forward to hearing your remarks. We'll start with Dr. Ernie Perry, Program Administrator and Facilitator for the Mid American Freight Coalition. Ernie?

DR. PERRY: Good morning. Thank you for the opportunity to speak about the state of our freight infrastructure, the freight capabilities of our region, and what I see in terms of our freight innovation and infrastructure to support our nation's energy needs today and in the future.

Now, first of all, I'd like to

acknowledge a comment by Secretary Foxx about the need for these states to work across borders with their transportation activities. That rings true for Chris and myself, especially because we both work with large number of states and coalitions. I work with ten State Departments of Transportation in freight planning and collaboration and in freight policy and program areas. We've been working with what we call the master of states which is the Mid America Transportation Region for over ten years now on freight planning and freight collaboration.

Our role and efforts have accelerated with the freight initiatives in MAP-21 that you might be familiar with, freight planning, freight advisory councils, committees and as well as the national freight network. But it is important to note that in this ten-year history of the Mid America Freight Coalition and working with these ten states, they have a record of innovation that provide service and capacity for freight movement in their states. Additionally, the coalition is

one of the longest operating in successful research development and collaborative efforts in freight across the United States.

Today, I'll address the region's freight transportation infrastructure and the significance of freight movement in the Mid America Freight Coalition region, the capacity in the region and the initiatives the states are pursuing now to ensure that infrastructure is available and in good condition for our business and industry and economic growth. Most of the work that I cite and the maps that I use are from a regional freight study. Again, that highlights across these ten states, that they are approaching freight as a multimodal, multi-state economic network that they have to support and enable the businesses in there to operate upon.

The Mid America Freight Coalition, it's the ten states right up here that you see, is a freight-centric region. 23 percent of the nation's truck tonnage, 63 percent of the nation's rail tonnage moves through this region. The

waterways are credited with shipping 44 percent of domestic tonnage exporting, and receiving 30 percent of the domestic tonnage. This region has the top three rail hubs in Kansas City, Chicago and Saint Louis, and one of the major inland ports in Saint Louis.

These ten states are innovators and leaders in freight policy and programs. They have participated in the coalition for a decade and were some of the first states to conduct freight planning, freight advisory committees, identifying work and manage their significant freight corridors, and work to establish multimodal total systems approach to transportation. This is important because now everybody is doing this within the last two years with MAP-21, but most of these states were pushing this agenda over ten years ago, realizing how important freight was to their region.

Regarding the importance of freight to the region, the MAFA states have recognized the economic and development linkages related to

freight movement and logistics. And for good reasons. When we look at the top five corridors in our region which I think all go through Chicago right there, within three miles of each side of these corridors lays 35 percent of the region's businesses and 42 percent of all the employees along those five corridors in these ten states.

In Indiana, Conexus Indiana states that logistics jobs on the average pay 15 percent higher wages. Additional, many states conduct economic analyses of their state transportation investment programs and find that for every dollar invested they are getting a return of $3 to $4 over a 20-year period. When you break that analysis down, you see that close to 60 percent of that benefit is accruing to freight industry. Simply put, good infrastructure enables business and economic growth, and freight corridors further concentrate this development and activity.

In terms of the infrastructure condition and freight movement in our region, the status of the region's freight infrastructure is

underfunded, aging, and often congested. Yet this system delivers some of the most efficient logistics around the world. Again, all throughout that soybean comparison from Illinois versus Brazil, the only reason that we're a lower price than the European in the international market is our transportation efficiencies. That's what puts us ahead of the ball there. But we are not keeping up with the investments needed to maintain this advantage. Investments in infrastructure in the US right now are currently estimated at 2 percent or less of the GDP. We invested around 12 percent during the interstate buildout, and Europe is currently investing around 5 and near to 12 percent in China.

So, when you look at this slide, with close to 70 percent of all freight tonnage moving across to our region currently on trucks, and freight load is expected to increase with the population levels, we will not be able to build our way out of this situation. Many of our major interstates, highways, are at 30 to 50 percent

truck volumes right now. We must look for alternatives in a systems oriented approach at moving more freight be it fuel or Fritos.

So, what are the states looking for to solve some of these capacity issues while maintaining their economic agenda? States are working to find financing in partnerships as true infrastructure funding versus financing is not delivering the needed support. In order to address these increasing infrastructure needs, states are advancing several agendas. Importantly, freight transportation is becoming more multimodal in the State DOTs and systems orientated as demonstrated by the work of the states on the marine highways.

This map up here is a map of the marine highway activity in the ten MAASTO states. And I would dare to say that we are one of the most active regions in trying to convert these waterways and defining them marine highways so we can get more freight on them and increase the awareness of that capability.

The states are also working to define their national networks and their highway corridors in terms of the national network and critical row corridors, that's the example on 35 over there. And we have taken this again with our regional freight study and went through the region, identified all the corridors as well as the waterways and the rail lines, how much freight is moving on them, and how they make these connections so that the states can use these as tools as they work across state lines to increase their capabilities.

In summary, the ten Mid America Freight Coalition states are major freight states. They are innovators and leaders in freight development. However, the rail and road systems in our region are at capacity and even beyond. Further, limited funding is crippling the ability of states to keep up the maintenance, no less building capacity for future generations.

There is a very genuine need for funding, not financing, and multimodal systems

approach to our transportation infrastructure, and greater connection between infrastructure planning and economic activity. Thankfully, through the coalition and independently, states are working towards these ends. So, thank you for the opportunity to comment on this very important topic in the Mid America Freight Coalition area.

(Applause.)

MR. HEDERMAN: Thank you. I'd like to, I wanted to ask on your point about the percent of investment, 2 percent GDP in the US, Europe 5, and China 12, is that road infrastructure or is that all transport infrastructure?

DR. PERRY: I believe that's all transport infrastructure.

MR. HEDERMAN: Okay, the answer is all transport infrastructure. Thank you. Our next speaker will be Henri Boulet, Executive Director of the LA-1 Louisiana Coalition. They have the challenge of immediately pursuing elevating some roads and we look forward to Henri's comments.

Excuse me. I neglected to explain who I

am and I might as well let you know that. I am Bill Hederman from the Department of Energy. I'm the Secretary's Senior Advisor on Energy Markets and the lead deputy on the systems integration aspects of the QER.

MR. BOULET: Good morning. My name is Henri Boulet from Southeast Louisiana. I'm Director of the Louisiana Highway 1 Coalition which is the sole access road going down to Port Fourchon, that Port Fourchon services 95 percent of the deep water energy activity going on in the deep water Gulf of Mexico. And I expect that most in this room and watching via the web appreciate the importance of securing energy sources needed to power up our nation's evolving economy. That certainly is just as essential in building energy infrastructure projects of national significance.

What you see on the wall now is old LA-1 during the Hurricane Ike storm surges. Ike was passing in the Gulf heading to Texas. And in the background is the new elevated structure we're building to replace the old highway.

The current lack of certainty is a significant hindrance as states struggle to budget these massive public works projects. In addition, as Congress works through the issues of funding a struggling federal highway trust fund to assist states with these projects, it is noteworthy that there is little consensus around providing other federal funding mechanisms for projects of national significance. Both certainly from a federal highway trust fund and other federal mechanisms are vital to bringing these infrastructure components together such as elevated LA-1.

LA-1 is a highway that runs from Arkansas to the border down to the Gulf of Mexico. The coalition was formed in '97 to advocate for improvements to 19 miles on the southern end at the coast. This segment of LA-1 is the sole highway connector from the levy protected communities to Port Fourchon and the Louisiana Offshore Oil Port also known as LOOP. The port is a launching point, as I mentioned, for 95 percent

of energies in the deep water gulf, and LOOP is the US terminal that receives approximately 1.2 million barrels of imported oil each day. Together, they are responsible for providing 16 to 18 percent of our nation's crude. LA-1 is also the evacuation route for thousands of residents and thousands of workers on energy platforms in the Gulf of Mexico out of continental shelf.

Time is really running out for our vulnerable highway. The highway is extremely vulnerable to storm washout. Annually, LA-1 faces tropical storm inundation as you see on this slide. And our worry is that the entire highway could be washed out if the perfect storm should hit our community. We often see 19 miles of a critical link of our nation's energy infrastructure under water and pray that it is still there when the storm surge recedes. Sometimes even mild Category 1 hurricanes take huge chunks of this critical two-lane energy highway out.

The importance of LA-1 was documented

nationally in a Department of Homeland Security consequence analysis on the potential loss of this highway from a natural disaster, chiefly storm surge, wave action from a tropical system. This study estimates that a 90-day closure of a small segment of LA-1 could result in upwards of an $8 billion loss in gross domestic product. Furthermore, NOAA conducted a tidal inundation study revealing that old LA-1 will be inundated with coastal tides high enough to close the road for 6 percent of the time by 2030 and 55 percent of the time by 2050. So, we really need this elevated highway to replace it sooner rather than later.

We are making progress. What do we need in order to avoid such a dire impact on the US economy? Quite simply, leadership in Washington to ensure that large projects like LA-1 can be finished. I was promised by President Obama when he first took office that his Cabinet members would jointly discuss agency common significant challenges to our nation. I would urge President

Obama to bring together the Secretaries of Transportation, Interior, Homeland Security, and Energy, all of whom have a common stakeholder interest in securing at-risk energy infrastructure like LA-1 and develop an adequate federal funding mechanism to address such needs.

In an era of fiscal challenges on the federal and state levels, we need to think out of the box. With such discussions considering state commitments, industry commitments, even local communities or local government commitments, we have learned to incorporate all of these in the LA-1 project to date. However, the remaining $345 million cost to construct the 8.7 miles we need to secure LA-1 to Port Fourchon is quite massive. We simply need greater coordination and support from our agency partners at the federal level.

In 2001, the LA-1 project saw a $371 million segment of 9.1 miles in green come online. That success is dampened by the likely reality that federal programs will not provide the funding needed to build projects of national significance

like LA-1. The USDOTD's tiger grant program only has $500 million a year for 50 states. So, when you do the math, that's but $10 million a year on average per state to invest in critical infrastructure projects.

The reality of this situation is that a little 19-mile highway stretch tucked away in a corner of Southeast Louisiana could cripple the flow of energy and cause billions of dollars of impact to our nation. At this point, the nation does not have an adequate funding source to partner with my host State of Louisiana, even at 50 percent share for a road that serves the nation and is the sole congressionally designated high priority corridor for its role as critical energy infrastructure. We all need to realize that states can't afford to carry capital improvements of national scale, and that a well-funded and thoughtful investment in critical energy infrastructure can address critical issues before they turn into catastrophes.

Thank you again for everyone joining in

today's conversation.

(Applause.)

MR. HEDERMAN: Thank you, Henri. That certainly illustrates the mixed blessings and challenges that we're dealing with here, and we look forward to talking about that some more.

Next, we will hear from Dr. Wayne Eckerle who is Vice President for Research and Technology at Cummins, Incorporated. And we look forward to getting insight into how the heavy duty transport technology is moving forward.

DR. ECKERLE: Okay. Thank you, Bill, for the introduction.

So, yes, I work with Cummins. Cummins is the last independent manufacturer of engines for diesel and natural gas. So, the trucks you see going down the highway, approximately 35 percent of those trucks have a Cummins engine in it, and 80 percent of those trucks have Cummins equipment in their engines in one form or the other.

What I want to talk to you a little bit

about is sort of where we are today and where we see the future going. So, I've been at Cummins for 25 years. For the past two decades, we've been really focused on meeting criteria pollutants, NOx and particulates. So, this has been a two-decade journey.

So, the vehicles you see going down the highways today have a 99 percent reduction in particulates and NOx, all right. So, when we talk about clean diesels, clean natural gas, we really mean clean, all right. And that did not happen by accident. It was a very strong collaboration among industry, among the Department of Energy, and with our regulators. So, the clean air emissions that you see today was a collaboration among all of us in terms of figuring out what was possible and getting our technology in place to do that.

So, that being a bit behind us now, for the last five years, I've had the privilege to work on fuel economy, all right, because fuel economy ultimately is what our customers care

about. And so, we're planning that same approach there. It's a great collaboration among agencies, among industry, and again among regulators around what we think those levels could be. So, I want to talk to you a little bit about where we are around fuel economy improvements and where we're headed.

So, I'll give you a couple of examples. Cummins was lucky enough four years ago to be an awardee of a supertruck program, all right. And that program ended up being an $80 million program, $40 million from the Department of Energy, $40 million in matching funds. And so, we're in the final throes of that and I want to show you where we ended up.

So, this is a picture of our supertruck, all right. This is a truck, real live, that runs down the road. And I can't possibly communicate to you all of the abilities that we've been able to develop with this program in terms of tools and so forth. But in the end, what we were able to achieve was a 75 percent improvement in fuel

economy, and not a fuel economy as miles per gallon because that tends to mean something to you.

And just so you understand, that the amount of fuel that is used everyday is about 2.75 million barrels per day. North Dakota is producing about a million barrels per day. 80 percent of that 2.75 million is in Class 7 and 8 trucks which are delivering the goods. So, you can imagine what a 75 percent reduction in fuel consumption is what we're talking about. It's literally tens of thousands of dollars every year to our end users.

The other metric that we tend to use is freight efficiency because these trucks are doing work. Right now metrics is ton miles per gallon. So, we improved that efficiency by 86 percent, right? So, the cost of moving goods has been reduced by 86 percent through the results of the supertruck program. And that there, oh, he didn't advance the slide, sorry. Yes, there's the slide, right, sorry. And so, those are the numbers I was

just quoting.

And the point I do want to make, out of those metrics, 42 percent of that was due to improvements in the engine and powertrain system, all right. So, we've gone, we've improved our ability to convert the chemical energy of the fuel by 20 percent for this particular enactment, and we're in the process of increasing that to 30 percent through similar aspects of the program.

A key piece of technology that's in this particular supertruck program is that we're recovering waste heat, right. So, if you look at an engine today, it's nominally in the mid 40 percent conversion efficiency. That means 55 percent of the energy is being wasted as heat in the process.

So, we have technology on board to recover that waste heat and convert into useful work. So, this is just a diagram of that. It's an Organic Rankine Cycle, a bottoming cycle. But this particular technology is giving us a 5 percent reduction in fuel consumption as it's

mounted on the engine today. So, a very new technology, working very effectively. Again, we were able to develop that with previous DOE funding and on the supertruck program as well. Next slide please.

So, this is just an example. We were lucky enough to have the supertruck when President Obama announced the timing around the phase 2 greenhouse gas regulation. And so, we took the truck down to the Department of Energy and you might see our new latest recruit in the vehicle. And I am told one of his biggest thrills was blowing the air horn while he was sitting in there, so it was good.

The other part I do want to talk about is that we have another DOE program called Atlas where we're applying the same approach in light duty. So, we have engines in the light duty pickups that you see going down the road today, and we have achieved 40 percent reduction in fuel consumption in those vehicles. But we also took that engine, all right, even though Cummins has

been a compression ignition company, we converted that engine to spark ignition. And so, this engine was running on E85 because we're very interested in making sure that our engine systems will be able to handle the various renewable fuels coming down the road.

So, we put this in the panel truck. We had additional funding from California Energy Commission. And that truck just finished its demonstration in the streets of Sacramento. I was out there this week when we finished that program. But you can see the reductions, okay, with that engine running on corn-fed ethanol, all right, we were emitting 40 percent less than diesel engine would in that and 62 percent less than gasoline.

Now, that ethanol is coming from a second generation biodiesel. We're talking about 75 percent CO2 reduction in diesel and a 78 percent less in gasoline. Now, through the torque curves up there, just so you don't think this is a wimpy engine, right, so that blue curve is a torque curve coming out of E85, and you can see it

compared to the red curve of gasoline and the black curve from diesel. And it's a 2.8 liter compared to the 6 to 7 liters that are in those vehicles today. So, again, this shows you what we can do when we put our mind to it and get some good results.

So, that last slide I want to show here is I talked about the collaboration. I'm a combustion guy so I hate to admit that we have to have after treatment on our engine systems but we do, all right. You don't get a 99 percent reduction in emissions without after treatment. This is just showing you the collaboration that we've had among the various universities and agencies.

And if you look at this slide, you can see we're operating all the way from the nanometer all the way up to the millimeter kind of scales, and from surface chemistry to chemical kinetics to what I'm calling reaction engineering, because the after treatment is a highly engineered system, highly integrated with the engine and the vehicle

to get the kind of emission reductions we're talking about without impacting fuel consumption. So, it's a very important part of what we're able to do with a vehicle.

So, finally, I just want to end with that we've had a great relationship with the DOE. We've been able to leverage that relationship to really deliver market-leading technology not only for emission reduction but also for fuel consumption reductions. We are literally saving our end users tens of thousands of dollars every year on the amount of diesel and natural gas that they're burning for moving freight. The partnerships are key, the regulations are key. As we try to accelerate these fuel reductions into the public, setting clear, concise goals as a nation will really accelerate how fast we can do that.

And lastly, in tying it back to today's conversation, the highway infrastructure is key to make this happen. If trucks are idling on the road instead of going down the road, if the roads

won't allow the trucks to run at the speeds they need to run at the efficiencies where they can run their best, we won't get the gains that we're talking about today. Thank you.

(Applause.)

MR. HEDERMAN: Thank you, Wayne. I think one of the pieces that really comes out of looking at the transmission, surge, distribution infrastructure is that we are seeing striking technology advances at both ends of this system. And we really need to make sure that the TS&D part isn't the bottleneck, and I think we're starting to hear about that.

Next, we'll hear from Chris Smith, and he will provide another very important perspective here which is that of the state officials. Chris?

MR. SMITH: Great. Well, thank you, everyone, for joining us this morning, and to the Department of Energy for reaching out to us for this important and timely and critical event. My name is Chris Smith; I'm the Senior Freight Program Manager at the American Association of

State Highway Transportation Officials. And we are the association in Washington, D.C. that represents all 52 State Departments of Transportation, including the 13 of Ernie's coalition and several of my colleagues here today from the Illinois Department of Transportation. So, I encourage you, after some of their thoughts later, to engage and get some expertise and direction from some of the very practitioners here in the great State of Illinois.

As Secretary Foxx stated in his presentation a little bit earlier this morning, the highway system is primarily a state-centric and state-driven system. States own and operate over 8,000,000 miles of public roadways. 800,000 of that are federally aided through the Federal Aid Highway Program which is Congress apportions through the highway trust fund, collective gas taxes, and handed over in a formula to all 52 states, I say that because of D.C. and Puerto Rico, for expenses in planning, programming and direction of highway infrastructure.

In the freight context, a total freight tonnage in the United States over the next 30 years is expected to increase by 30 percent, the value of total freight by over 55 percent. And today, over 65 percent of all things moving in the United States move by truck. So, even if you were able to double the capacity of the other modes of transportation, you still have an overwhelmingly significant amount of goods moving on the highway systems that states and the local and federal partners own and operate.

We are in a serious and in a time in our country with the operation and management of this highway system in the funding stratus of managing by crisis. And if you all have been paying attention to the news the last couple of weeks, you might have noticed that the highway trust fund solvency was a very, very large issue before the Congress left Washington a couple of weeks ago. What that's to say is all of those revenues, that the gasoline taxes collect from both automobile drivers as well as truck drivers is collected at

what they call at the rack but passed on to the consumer, goes into about a $34 billion a year trust fund in Washington and it's supposed to be spent only on highways. And it is.

However, that $34 billion isn't enough to continue operating highways at current capacity, much less what we need. And so, where this ties into the energy conversation, as the energy boom continues to grow, it continues to place demands and strains on the highway system. This is a system that's already strained in congestion as it is at status quo. This is a system that needs billions of dollars in investment just to meet status quo. You're adding new variables on top of this freight growth on top of this that really we're getting to an oversaturation point in all of this.

So, how are State DOTs looking at this as the owners and operators? How are they looking at the financial side of this, how they plan highway networks, how they program their limited resources? And what are some of the operational

methods State DOTs are looking at to address not only freight but the energy and freight and general commercial goods movement?

On the financial side, this managing by chaos, this unpredictability of enough federal resources to the gas tax, a gas tax that hasn't changed in 20 years as to rates, that Congress does not seem to have the appetite to change, and spending down of a trust fund that hits volatile levels of solvency on a case by case or almost a year by year basis now, how do states deal with that when about 20 to 40 percent of their spending programs isn't a reliable source? Well, states aren't operating in a vacuum. They're looking at their own tax and finance policy.

Recently, the State of Virginia lowered its state gas tax and raised its sale taxes to apply to transportation. Pennsylvania changed the point in place where it collects its gas tax, raised it and it tied it to inflation. So, it built in a growing revenue increase. Other states have directly raised their gas taxes. Other

states are looking at financing and tolling operations and ways to deliver highway projects because the reliability of that federal funding piece is quickly evaporating and very, very unsustainable.

On the planning side, you know, the way the states look at where to put these resources, where these highway networks are going, what they're carrying, who they're carrying, when Congress enacted MAP-21, the most recent surface transportation bill, there was significant freight language in it for the first time ever. Some of that language includes an encouragement to the State DOTs to examine and plan for the movement of commercial goods as an interconnected system that utilizes all modes of transportation, what we call a statewide freight plan in simpler terms. The law also encourages states to engage the private sector freight users in this process, what the law calls state freight advisory councils.

Now, I appreciate the comments this morning from the gentleman from the Illinois

Chamber of Commerce. I would encourage you and others in the business community and the user community to reach out to your State DOTs, find out if they have a state freight advisory committee, find out how you can involve and be engaged and be at the table. These are the folks who are going to be making these plans. These are the folks that need to know how the highway systems and the freight systems impact your businesses, impact your customers, and impact the industry and your states.

It's very encouraging to see that the federal government has sort of, the light bulb has gone off and woken up to this freight thing, because quite frankly this stuff has been going on at the state level already for many, many years. These are advisory committees to statewide freight planning issue. When MAP-21 passed in 2012, we already had 26 states that had some form of statewide freight plan or freight elements within their overall planning network.

And so, as you heard Secretary Foxx

mention earlier, USDOT is charged with the creation of a national freight strategy and a national freight plan. Well, if you already have a major body of work from the very folks who have been stewards of the highway system for 75 plus years, it doesn't make sense to reinvent the wheel. And we are looking forward to engaging the federal government with these state freight plans and how states understand freight and movement interim boundaries and through coalitions like Ernie, how they are moving across state lines, to really be a collective and bottom up approach to looking at how freight in the United States moves.

One of the other tasks before Secretary Foxx is the creation of a national freight network. The law directed the USDOT to do that. The law is, I will note the law is a highway law; it applies to the highway systems. And so, it really compels the DOT only to look at the highway system. But as we all know, freight moves systemically, it moves on water, it moves on rail, and so there is a need and an understanding to

understand all those things.

But for now, they're looking at a national freight network to really see where are those primary corridors and where are those things moving on the highway system nationally that really apply to commerce and commercial goods in this country. Part of that network is the interstate system. Part of that network is the national highway system that moves high volumes of freight. And where the states' role are going to be, the states are going to have to identify what's called critical role freight corridors. And that's a chance for a state to look at its own highway network and see where commodities and goods are moving and show the federal government what its understanding is of these flows.

And one of the things that Congress directs the states to do in this regard is to look at the flow of energy commodities and energy goods. So, again, talk to your states, talk to your DOTs, get involved with the state freight advisory committees. Let them know where these

things are moving, where these products are going, and where the high demand things are in the system.

On the operational side, states are also looking at how this growth and energy sector impacts things like truck size and weight. The propane issue here in the Midwest this winter, one of the strategies to try to move propane faster to markets was to allow heavier trucks to move it. That's a state purview. States consider those sorts of things, and the federal government now allows states to more efficiently look at that in times of crisis, in times of emergencies, USDOT as the coordinating body. But again, if you think about the highway system as state-owned and operated, state-maintained, the states are your partners in all of this, in freight and energy combined, understanding where things are going, targeting those investments to them, and supporting an infrastructure for all energy and for all commodities moving into the 21st century.

So, thank you again for having me this

morning. I'm looking forward to our question and answer session and hope we can stick around a little bit more for conversation.

(Applause.)

MR. HEDERMAN: Thank you. And I want to thank all the speakers, you're doing a really good job of leaving time for Fred to come up and help lead a discussion after your remarks.

So, Casey Dinges is going to speak to us from the professional perspective of the American Society of Civil Engineers. As probably everybody in the room knows, they have brought a lot of attention to this through their annual report cards. And also, Casey has been involved in creating PBS shows about engineering, and that's certainly important for our workforce development side. So, welcome, Casey.

MR. DINGES: Thank you. The report card seems like it's every year, it's actually every four years.

MR. HEDERMAN: Okay. The quadrennial report though, our quadrennial is every year.

MR. DINGES: There you go. When the media makes that mistake, I don't make that correction. That's okay. But anyways, again thanks for the opportunity to be with such an esteemed panel today.

ASCE is an international membership organization with 145,000 members, most of them in the US. I ran into one of them today, Kay, great to see you in Chicago.

As stewards of the nation's infrastructure, civil engineers are responsible for the design, construction, maintenance and operation of our vital public works. With that responsibility comes an obligation to periodically assess the state of the infrastructure, report on its condition and performance, and advise on the steps necessary to improve it. We do this in part by compiling a report card for America's infrastructure.

America's infrastructure received an overall grade of D+ in 2013, up slightly from a D in 2009. While this is not the kind of grade you

would want to bring home and show your parents, the good news is six of the sectors did see improvements since 2009. I don't know if anyone saw Stephen Colbert when he spoofed the report card when it came out. The way he said that was the grades went up in all 16 categories except 10 of them.

So, we know we must do a better job with our infrastructure if America is going to continue on a trajectory of economic growth. We continue to see categories of infrastructure that simply are not seeing the maintenance or investments to improve day-to-day performance or save money in the long term. The backlog of projects to maintain and modernize our infrastructure keeps growing. Two of the categories we evaluated received near failing D- grades, levies and inland waterways. I guess it's good Jo-Ellen out of the room now. No, she's seen the grades before and she understands where we're coming from.

Why did some sectors improve while others continue to fall behind? The answer is

actually simple. In sectors where investment was made by both the public and private sectors and innovation solutions pursued, the grades rose.

Okay. This is the big money slide. Don't get too overwhelmed by all the billions and trillions before you. In 2013, we faced a total investment need of $3.6 trillion by the year 2020 across all 16 infrastructure sectors that we evaluated. We're already prepared to invest about two-thirds, but we face a funding shortfall of $200 billion a year for infrastructure, actually a slight decrease from four years ago. So, that's how I scale $3.6 trillion, an overly massive number, down to $200 billion a year, a large number but a more manageable number. You know, what's $200 billion among 320 million Americans, right?

So, surface transportation has the largest total needs and the largest funding shortfall at $846 billion, although you'll see that there is a great deal of funding set aside each year in that category. We're assuming here

that this is a total investment needed to get a grade of B or a state of good repair on the report card. This number draws from our four economic studies which I commend to all of you called the failure to act, as well as our industry projections of needs for the categories in dark green. These numbers look out to 2020 covering eight years of infrastructure investment needs which is an appropriate time frame for planning and action.

I know we're here to discuss energy transportation infrastructure, but I wanted to note that ASCE has focused on energy infrastructure as well in the past several years, and we have a lot of members working in this space. This table comes from the economic study we conducted in 2012 on energy generation transmission and distribution infrastructure. It's a good reminder that we are not only talking about the infrastructure we need for today but also for tomorrow.

Even with our best efforts to reduce and

stabilize the demand for energy in this country, the demand for energy is expected to grow. It grows at a modest rate of about 8 percent between now and 2020, and then additional 17 percent between 2020 and 2040. As our population and economy grows, I think we may be the only western industrialized nation that still has a growing population, by the way. We need to make sure that we are ready.

So, let's look at the conditions of the major transportation sectors in 2013. Let's start with roads. Roads improved slightly from D- to D, largely reflecting the improvements in pavement condition and significant reductions in highway fatalities in this country. However, 42 percent of America's major urban highways remain congested, causing the economy an estimated $101 billion in wasted time and fuel. While the conditions have improved in the near term, federal, state and local capital investments increase to $91 billion annually. That level of investment is so short of what is needed and

projected to result in declining conditions and performance in the long term.

Over 200 million trips are taken daily across deficient bridges in the nation's 102 largest metropolitan areas. In total, one in nine of the nation's bridges are rated as structurally deficient. However, the overall number of structurally deficient bridges is continuing to trend downward; the grade improved slightly to C+ in 2013. Yet the number of structurally deficient bridges in urban areas which tend to carry the most traffic is staying stagnant.

Okay. Here, you can see the grades for all the surface transportation categories that impact freight. And we see grades lagging in the C's and the D's. Now, I'll just touch on a few of the modes here and their support for freight movement.

Inland waterways, and we heard from Jo-Ellen Darcy earlier about the importance of that system, once again remained at a D- as conditions remain inadequate and investment levels remain

stagnant. There are an average of 52 service delay/service interruptions per day throughout the Illinois waterway system in the United States. Projects to repair and replace aging locks and dredge canals take decades to approve and complete. In fact, there is a backlog of major projects with estimated schedules stretching out to the year 2090 under current funding levels.

Ports was a new category in 2013. It debuted with a grade of C, focused largely on the land side and water connections rather than the facilities themselves. While port authorities and the private sector partners have planned over $46 billion in capital investments from now until 2013, federal funding has declined for dredging as well as the land side connections needed to move goods to and from ports.

Finally, rail has a bit of a good news story here. Both freight and passenger rail have been investing heavily in their tracks, bridges and tunnels, as well as adding new capacity for freight and passengers to the tune of $75 billion

since 2009. In 2010 alone, freight railroads renewed the rails in more than 3,000 miles of railroad tracks, the equivalent of going coast to coast. With high ridership and greater investment in the system, the grade for rail saw the largest improvement, moving up to C+ from C- in 2013.

Okay, this slide, there's a little mistake on this slide. So, ignore the numbers for just a moment if you would and just listen to what I say and then I'll try to explain what you're seeing there. So, what does this mean for freight in the larger economy? A stronger freight transportation network is critical to our nation's long-term economic growth. What we have found is that America's infrastructure grades have an impact on our bottom line. We know that failing to meet the overall $800 billion investment gap just for surface transportation by 2020 will have the following impacts on our economy.

US companies shipping goods to market will experience congestion and delays leading to higher transportation costs, causing the price of

goods to rise. The cost to businesses of higher transportation will be $430 billion by the year 2020. As the price of US goods rises, we become less competitive in the global marketplace, resulting in a decrease in US exports. Exports would drop by $28 billion by the year 2020, and our GDP would underperform by nearly $900 billion.

The figure up there, the $3.1 trillion in GDP, that number applies to all the 16 categories of infrastructure we looked at, not just transportation. So, I do apologize for the mistake at the top which suggests that these numbers are associated just for the transportation sector. That is a real number but that was in all 16 categories that we looked at. So, still it's significant that just in eight years, that the GDP could suffer by that much. But that's looking at water and, you know, all the other categories we looked at, not just transportation.

One other economic note here, if we don't make the investments in surface transportation, we are putting at risk nearly

900,000 jobs in the US economy by the year 2020. You see for all categories it would be three and a half million. So, transportation is a big part of the puzzle here.

We do have an app. I hope everyone takes the opportunity to download it. There's a lot of good information in there. It's not all doom and gloom. There are a number of success stories that we try to highlight. You can look at information by infrastructure sector. You can also look at it by state. So, you can download it for free at the iTunes store, Google+, I'm not even sure of all the platforms.

Infrastructure is the foundation that connects the nation's businesses, communities and people, driving our economy and improving our quality of life. In the short term, we need a national commitment to bring the existing infrastructure into a state of good repair; and in the long term, we must modernize and build in a targeted and strategic manner.

A D+ is a grade we cannot accept as a

country. We must commit today to make our vision of the future a reality in American infrastructure system that is source of our prosperity. Thank you.

(Applause.)

DR. HANSEN: Okay. This is the part where I get to ask the really tough questions of you guys. It's clear that there is a problem, there's a lot of elements to that problem, but I noticed, Dr. Perry, you said something very interesting. You said we can't build our way out of this and we're going to need a systems approach. And I think everyone agrees that there needs to be sort of a systems approach, a strategic planning of all this.

Can you tell me what you think are some of the most important sort of interdependencies or interconnections that need to be really considered when we're talking about a systems approach to addressing the multimodal infrastructure?

DR. PERRY: When I referred to that, what I mean by that basically is that when you

look at how the freight moves and if we've got the population growth and the freight expected to grow by 30 percent over the next 20 years, we cannot put all that on the highway. A lot of our highways are already 30 percent, 50 percent truck capacity. It just can't go on there.

We've got these other systems, the rail as well is full, waterways still has capacity. But the total systems approach is when we step back and look at our planning across state lines, across these modes, that we probably need to be a little bit more broad thinking in how we approach the entire transportation system as a functioning integrated unit. And I mean it's that simple. Instead of these pieces and the trucks and the rail and they're segregated systems and there are segregated commodities on those systems, we need to do a better job of aligning these economic activities with the best benefit for society on moving these on the certain systems that they are most appropriate for.

So, we really need to open the door for

the waterways and as well as keep up with our trucking and our rail initiatives in the pipelines because it's going to be a full frontal thing to do. We cannot deal with a single mode; we're going to have to do all the modes.

DR. HANSEN: Okay. So, from your point of view, it's the modal connections that are going to be important in the systems.

DR. PERRY: Definitely the modal connections as well as expansion of the awareness and advocacy on the use of these other modes, particularly the waterways.

DR. HANSEN: Okay. Casey, you talked about a score card in a lot of different ways. What would you say about the interconnections that are needed? What are the considerations?

MR. DINGES: Well, I have to agree with, I mean if we can be as wholistic as possible, I think that's the way to go. And you know, looking at the inland waterway system, I mean here's, you know, here's a D- on the report card. And we heard from Jo-Ellen how efficient, you know, that

system is in terms of, you know, a gallon of fuel carrying freight.

But if you look at the, you know, the entire Mississippi watershed, I mean you're hearing something that drains from, you know, if you take the Missouri River from Western Montana all the way to, or Eastern Montana all the way to, you know, Western New York State and everything flowing into the Mississippi, so you have a transportation network, you have transportation and energy networks that actually have to cross that river. You have a water supply that is not only used for transportation in waterways but also drinking water. You have waste water effluents being put into the system.

So, I'm not just talking about between the different transportation nodes. I'm talking about a lot of these sectors, you know, trying to look at this as wholistically as possible and not trying to pick winners and losers between, you know, roads or railroad or freight, but try to, you know, kind of lift, you know, all these

systems up in a way. It really is, and not to ignore the airside system, but if you look at the water, the rail and the roads, I mean this is a, if you will, the three-legged stool of surface transportation. So, I would agree as, I would even, perhaps even go more wholistically that's already been suggested.

We also need some kind of national vision. We haven't had one in infrastructure in a long time. You know, we had the interstate, I mean, Eisenhower had a vision, some might say the Clean Water Acts and the environmental movement in the early 70's in terms of cleaning up rivers and addressing safe drinking water standards in this country was a bit of a vision. The President might have made a little bit of a stab at it with high speed rail but it really hasn't, you know, kind of gotten the kind of traction he was looking for there. And I'm not sure, we don't have the vision at ASCE. It's going to have to be a number of stakeholders kind of coming together, but I do think a vision would help.

DR. HANSEN: Good. Mr. Boulet, you had a very specific focus in your talk. But for this wholistic, what do you think are the big issues, the connections, the complexities for the wholistic view of this issue?

MR. BOULET: I think, you know, looking back on the Secretaries' comments this morning and the explosion in shale energy becoming available to this nation, I think, you know, the most efficient way to move those products is through pipelines. And I think, you know, we're going to see more burden on the railroad certainly in the short time in moving a good bit of that product. But you know, in the long term, I think our nation needs to invest in new high volume pipeline capacity from the north to the south to the east and the west that will give us the ability to move not only the shale formations that have been identified now but with new technology that's going to drive the energy economy.

I think we're going to have formations all over this nation. And I think the long term

way to handle that, the safest way to handle it would be major investment in pipeline infrastructure.

DR. HANSEN: Okay, good. Chris, you talked about planning at the sort of state level on that. How do you deal with the complexity of all this thing? How would you even approach it?

MR. SMITH: Well, you know, the irony is not lost on us at the energy review of the complete relationship between energy policy and transportation plan policy. Your roadway system is funded by gasoline consumption in an era where Americans, they're driving vehicle miles have dropped but freight growth is growing. And then the inland waterway system where the locks and dams the Army Corps of Engineers operates are funded by diesel taxes. And so, our very, you know, the core thing that comes down to all of this is money.

You know, we all talk about investing in the system, doing it systematically, but where are the resources to do it? The resources we have

available to us now aren't adequate. They are bucketed. You have a highway trust fund. You have an inland waterway trust fund. Now, you have a private railroad network. You have committees in the Congress organized this way. You have a Department of Transportation organized this way.

And so, we want to see the systematic approach but it's not systematic in the area that it's most important, and that's how you finance and you fund it. And so, states look at that through the planning and in understanding these networks because the assets they have to improve any of this stuff are limited and the strings attached to them are limited. So, there is only so much that can be done without a massive rethinking of policy.

DR. HANSEN: Right, okay. Not to leave you out, Dr. Eckerle, what would you say is the contribution that technology innovation has? It just seems like your company has been involved, has done some advances in technology. What other kinds of advances do you think could help?

DR. ECKERLE: Well, I mean I didn't talk a lot about it, but certainly in the automotive section, if we move to electrification and we start looking at recoverable energy on a vehicle itself it could be important.

The other thing to think about is what's the role a renewable fuel is going to play, and how can those renewable fuels be localized so you don't have to move the stuff all over the place. It can be really important. And what we see is just, to the earlier point is that we're just not organized around how we move things. I mean we take stuff from the east and we move it to the west, we take a similar product from the west, we move it to the east. And so, trying to get all of those flows synchronized is really important.

And of course, from our point of view, we would like to see concrete that lasts. So, I'm very interested in the civil engineers that are coming forward with concrete that lasts a long time so that trucks can continue to move our freight efficiently.

DR. HANSEN: Great, thank you. Okay. We're almost out of time so I'm going to give each one of you sort of one last word. Could you, what advice would you give to the QER team, you know, if you had sort of a final advice? They have to address this problem, they're moving forward. Any piece of advice? Why don't we start with you, Dr. Perry?

DR. PERRY: My advice would be that the State DOTs realize what's on their plate and what's coming down the road, they realize that their economy is at stake as well as their transportation system and safety of all the passenger traffic, and that they need to do more coordination with the State DOTs as well as encourage the states to work across these borders and incorporate more of the economic activity into how they plan. So, that would be my massage, more collaboration, more work together, and funding instead of finance.

DR. HANSEN: Great. Okay. Henri, your advice to the QER?

MR. BOULET: My QER advice would be to have the administration through all of the agencies involved in energy work on a long-term funding plan that can pass the Congress and look at, you know, state shares, look at industry share, look at community shares, and make that a criteria by which, you know, communities who really want to work on this and have that for their long-term economic sustainability can participate, make a pledge, and help win federal resources.

DR. HANSEN: All right.

DR. ECKERLE: It's a systems engineering problem, so make sure you're clear around some of your targets, make sure those targets are done at a level where you can engage all the various functions, and continue to work across agencies because, for us, any time the agencies are at cross purposes, it just makes everything very difficult and we just lock up.

DR. HANSEN: All right, thank you.

MR. SMITH: Beware unintended

consequences. This energy thing is very new to us all, to states, to the federal government. There are places where --happen that had no roads or rails five, ten years ago. Is this a short-term trend? Is this a long-term trend? When you're talking public infrastructure and planning, those are long-term things. So, you're talking about a dynamic economy that's not, there is some reconciliation that has to be done there.

MR. DINGES: Three quick things if I may. The first thing, increased leadership so that the public is more engaged on this. I think the reason why we saw the highway trust fund go the precipice is that for the public this issue is not quite a top tier issue. It's not quite up there with healthcare and some of the other things that are top of the line. So, increased leadership.

Secondly, promote sustainability and resilience. I'm surprised I didn't hear either one of those words yet today. And we say sustainability, that's the triple bottom line,

environmental sustainability, economic sustainability and social sustainability.

And then lastly, develop and fund plans to maintain and enhance America's infrastructure.

DR. HANSEN: Great. All right. I'd like you to join me in expressing appreciation to our panel members.

(Applause.)

DR. HANSEN: And then could I have the panel for How a Critical Component of Our Nation's Energy Infrastructure is Adapting to 21st Century Energy Transportation Challenges, the Rail Group, come up to the stage?

(Pause.)

MR. HEDERMAN: Okay. Thank you. We want to move on to the next panel. We are running a little bit behind time, so we've, you know, of course this came from the extended conversation to start with so it's no one's fault that's still here in the room. But we'll appreciate it if everyone can stay within five to seven minutes in remarks, and that will help have a little time for

conversation.

So, we're on to the rail panel now. Again, we have a mix of customers of rail. The rail industry is represented by the association, have a municipal perspective, and a professor of logistics to wrap it all together for us.

So, first up will be Sean Craig, manager of fuel supply from the Dairyland Power Cooperative.

MR. CRAIG: Thank you. Created in 1941, Dairyland is a generation and transmission cooperative headquartered in La Crosse, Wisconsin. We serve 25 distribution cooperatives, 17 municipalities in Wisconsin, Minnesota, Iowa and Illinois, serving almost 600,000 people daily and employees about 540 people. We generate electricity primarily at coal-generating facilities in Wisconsin, but we have a diverse energy portfolio that also includes hydro, natural gas, wind, solar, biomass and biogas.

Reliable and predictable rail delivery service is necessary to ensure coal is available

to produce power to meet members' demand. The Billington Northern Santa Fe or BNSF railroad provides Powder River Basin coal delivery service to our Alma site and the Mississippi River barge terminal where the coal is transferred from trains to barges and delivered to our Genoa facility. The reliable and predictable rail delivery service for Dairyland destinations have been challenged with multiple factors. Our most recent delivery issues began in the fall of 2013 at our Alma site and bottomed out in the heart of last winter's polar vortex when inventories fell to dangerously low levels.

Since the BNSF did not provide solutions, Dairyland was forced to take drastic steps, the expense of which directly impacted our members as we are a not-for-profit electric cooperative. Dairyland had to truck hundreds of coal over local roads from sources over 80 miles away, reduced generation at our power plants in order to conserve coal inventory, purchased higher priced power from other sources. Our current

inventory at the Alma site today is at 22 days on-hand, meaning if we do not receive another rail set within 22 days, we will be out of coal.

And the delivery problems have expanded to the Mississippi River terminal that affects our Genoa Power Plant. Because the barge shipping season is limited due to the winter freezing, Dairyland must receive enough fuel before winter begins to last until the river thaws again. To date, Genoa's coal supply is 50 percent below where it should be. If this trend continues, Dairyland's Genoa Power Plant will run out of coal and will be unable to generate power after January 2015. To overcome the shortage, the BNSF will need to triple the amount of normal pace of deliveries for the remainder of the shipping season which is through October.

Dairyland continues to work with the railroad and attempt resolve these issues. We value our relationship with the BNSF since they play a very important role in helping us provide reliable and reasonably priced electricity to the

region.

That's Dairyland's story. Many utilities and specifically other electric cooperatives are facing similar issues. Sub par service by railroads can pose a significant risk to the reliability of the electric grid, as well as increase the likelihood of much higher energy rates for consumers.

One other example is Sunflower Electric Cooperative, a consumer-owned, non-profit corporation located in Holcomb, Kansas. It is operated cooperatively by six rural electric distribution cooperatives to which it supplies wholesale power for people located in 32 central and western Kansas counties. Holcomb, the only base load coal-fired unit in the area is captive to the BNSF. Since 2012, Sunflower has seen cycle times increased to as high as 11 and a half days, quickly leading to delivery shortages.

Sunflower's board policy and risk management strategy is to have a 30-day minimum inventory of coal. As of mid July, Sunflower had

approximately 20 days of inventory. If service does not improve for the remainder of the year, Sunflower will be forced to curtail generation again this fall, and inventory will reach zero days by the end of December, creating a reliability issue for the Southwest Power Pool of which Sunflower is a member.

One other example is Arkansas Electric, a generation and transmission cooperative that provides wholesale electric power to 17 electric cooperatives which in turn serve over 500,000 members located in every county in Arkansas and also in surrounding states. Through joint arrangements with other utilities, Arkansas Electric power production is dependent on reliable and economical rail service in order to provide reliable and affordable electrical service. So, far this year, Arkansas Electric has seen cycle times increase as much as 30 percent, and coal inventory has dropped by 50 percent in some cases. Due to poor planning and logistics by BNSF, one Arkansas Electric power plant now has only 16 days

of coal inventory.

What about the future rail challenges and what cooperatives need from the federal government? A little over 30 years ago, after passage of the Staggers Act, market competition is almost totally lacking for those rail customers who ship by rail, a group often called rail-dependent shippers. In 1980, there were over 40 railroad carries. Today, there are just four major railroads that have divided the country into regional monopolies. Recent analysis shows 78 percent of rail stations are captive to a single major railroad.

Government protections are weak and place all burdens of proof on rail customers, leaving them in a take-it-or-leave-it situation with virtually no path for recourse against the railroads. This lack of recourse leaves the railroads with little accountability for poor performance like that outlined today. Policy changes are needed to increase accountability for railroads to customers and ultimately to

consumers.

Today, my statement represents the National Rural Electric Cooperative Association, Consumers United for Rail Equity, and my employer, Dairyland Power Cooperative. We appreciate the Department of Energy holding this event to provide the stakeholders an opportunity to speak. Thank you.

(Applause.)

MR. HEDERMAN: Thank you, Sean. And now we'll hear from John Gray, Senior Vice President of Policy at the American Association of Railroads.

MR. GRAY: Thank you. Thank you for the opportunity to talk to you a little bit about what the energy business is within the rail industry, and then to follow up a little bit on the investment levels that are going on for infrastructure.

If you look at what energy is in terms of the portfolio of our business, the largest single carload item is not the largest single

commodity that we handle but it is the largest single carload commodity, is coal. The numbers on here for coal actually represent about a third of the electrical generation capacity in the United States today. So, it's a significant amount of the energy that's used in the US.

The other area, and again it's the one that has the red lettering on it, the second one, is the area of crude oil, ethanol and other petroleum products. And it's those three, the crude oil, ethanol and petroleum or coal. I would like to give you a little bit more detail on as we go forward.

First of all, in terms of coal, the fact is that the coal is generally produced in places where it's not consumed. And so, you have to get it somewhere. Wyoming is by far the largest production area for coal in the US. In fact, the flow of coal out of Wyoming by rail is the largest freight flow in the US. The amount of coal that comes out of there every year is roughly equivalent to the entire amount of freight that's

handled on the inland waterway system. So, Wyoming alone is about the size of the whole inland waterway system in terms of the volume of freight.

It's similar with the other two big producers, Kentucky and West Virginia. The three of them, Wyoming, Kentucky and West Virginia, pretty much dominate the business of producing coal. On the other hand, consumption is all over the board. It's large volumes in some places but there's a lot of different places that receive coal.

Now, if you look at coal moving by rail, it peaked in 2008. It's been a declining commodity ever since then. And the decline is pretty straightforward. It's a substitution that a lot of power plants are using natural gas for in place of coal. There's obviously been a tendency for plants that have the capacity to use natural gas because it is cheaper to substitute the natural gas wherever they could over the last few years for coal production. Net impact on our

business and the coal movements is if you look at the volumes, it's down about 30,000 carloads of coal a week for the rail industry. So, we're talking close to a million carloads to a year that we've seen disappear from the portfolio.

Crude oil, a different direction on everything for this. If you look at the crude oil, I think the Secretary had mentioned that you've seen production increase in crude oil by about 4,000 percent in terms of what's handled by rail since 1909. That's true. But that is largely a function of the fact that there was almost nothing handled by rail in 1909, or 2009 rather.

In terms of what the rate of use is running, in 2013 the production that was handled by rail was basically about 900,000 barrels per day. The rate of run in 2014 is a bit over a million barrels a day from what we're seeing so far. So, it has been a growing commodity. It's starting to level off at this point in time, but it is one that has been a growing commodity.

Now, because it has been a growing commodity, it is blamed for every service problem that is known to man by most observers of the rail industry, or outside observers of the rail industry. But the reality is that crude oil is only about one and a half percent of what we handle out there. It's not a huge commodity for the rail industry. As I say, a growing commodity at this point, not a huge one.

And in terms of, I believe the Mayor in his opening statement was talking about all the trains of the stuff that there are, well, in reality there are about 5,000 trains that originate on the US rail network everyday somewhere in the country. Of these, about 12 are crude oil trains. So, if you put it in proportion of what it is out there, it's not a lot of new train roads that are out there. But these happen to be concentrated in very specific places, particularly the concentration in North Dakota which has certainly been disruptive just because where you get these things concentrated; it takes

more capacity than would otherwise be available. And it has led to some capacity problems because of that, and that's why one of our members is investing about $400 million in that area to relieve some of those capacity problems this year.

Now, the other big energy item where we're handling the energy material itself is ethanol, again about 300,000 carloads a year, about three-quarters the size of the coal business. Ethanol, unlike coal, unlike crude oil, ethanol moves generally in single carload lots or multiple carload lots rather than unit train lots. And so, it goes from a relatively small number of production points although larger than either coal or crude oil to lots and lots of destination points where it's blended with various gasoline production areas.

Finally, let's look a little bit at what the industry has been investing in infrastructure and equipment. By far, most of our investment these days is in infrastructure, not equipment. For example, none of the tank cars that are used

in crude oil service are actually owned by railroads. They're all owned by oil companies. A lot of the cars that are used in coal service are not owned by railroads, they are owned by either utilities or coal production companies.

But the infrastructure is owned by us. It's something we have to finance. If you look at the expenditures up here, the total on maintenance and capital, and capital tends to be the growth areas in the infrastructure, the total of it has been about $25 billion a year here recently. And that's a number that we expect would be sustained going forward, at least at those levels going forward.

I'd emphasize that this, unlike the numbers we heard bandied about and a small percentage investment of the resources available, for us this represents 17 to 20 percent of our revenue most years invested in new capital projects. And the total portion of our money going in in the infrastructure is about 40 percent. That's not uncommon for a network

industry. It's one of the things where you have a lot of infrastructure; you're going to have a very high portion of your revenue invested back into that infrastructure.

The other thing about this is it's all private money. With all due respect to the Secretary this morning in his, you know, his comments on investment in the infrastructure, the reality is for us it all has to come from private sources. There is no public source for investment in our industry. It has to come from basically what we charge our customers to move their freight. And so, that is the source of the investment in our industry, it is not the public. There are public projects that we undertake. However, the vast majority of this investment, I'm talking 99, 98.5 percent, is money that has to come from private sources.

So, with that, I'll move on.

(Applause.)

MR. HEDERMAN: Thank you very much. Next, we'll have another customer, from Wisconsin

Public Service Corporation, Dave Wanner.

MR. WANNER: First, I'd like to thank DOE for giving me the opportunity to talk a little bit today about how important rail infrastructure and rail transportation are to my company, and to all our customers as well. The short form of my presentation would simply be to say I share Sean's pain. But I'll be a little less brief than that.

I'm the Manager of Fuel Services for Wisconsin Public Service Corporation, or WPS for short. And we serve about 445,000 customers for electricity, and about 323,000 natural gas customers. These are primarily located in Northeastern Wisconsin.

During 2013, approximately 82 percent of all the electricity we generated, and approximately 55 percent of all the electricity that we provided to our customers came either from our own coal-fired power plants or from our share of jointly owned coal-fired power plants. So, coal-fired power is very important to us. Our coal all comes from the Powder River Basin in

Wyoming and it's all transported by rail, and there really isn't another viable mode of transportation for coal to our plants.

Now, I'm going to use events that began in late 2013, much as Sean experienced, and really continue to this day, to kind of illustrate both the importance of rail to our business and also some areas that maybe should be looked into. My comments are going to be based on events at our Westin Plant. Our Westin Plant is located in North Central Wisconsin. It's our largest coal-fired power plant.

At the beginning of December 2013, our inventories were sitting, our coal inventories were sitting at about 105 percent of our target. So, we were about where we wanted to be. And rail deliveries during 2013 had been generally reliable. However, in December, that changed. Our December cycle times which is a time that the railroads have both the loaded train that they bring to the plant and then once we empty the train, the empty train back to the mine, that

combined time is the railroad cycle time, and it increased over 25 percent in December compared to our year-to-date average.

Now, by the end of December 2013, our inventory was all the way down to 72 percent from its 105 percent at beginning of the month. We really do need reliable deliveries of coal. And of course, at this time we're in the middle of this really cold winter, this polar vortex, and delivered natural gas prices to parts of Wisconsin was skyrocketing. Oftentimes, the Henry Hub price was quoted as a barometer of natural gas prices. Well, some of the delivered prices into parts of Wisconsin were five or six times above that Henry Hub price which was itself increasing. And a lot of that is partly due to pipeline capacity issues for natural gas, much as we're seeing in the northeastern part of the country.

But this also illustrates one of coal's significant advantages. Now, coal is the only source of electricity, the only large source of electricity that can store significant amounts of

fuel onsite. However, this large advantage of coal is greatly nullified if the railroads don't provide reliable transportation.

Rail service to Westin continued to struggle during January and February of 2014. By the end of February 2014, we were down to 23 percent of our target inventory. Therefore, at the beginning of March, we had to implement some coal conservation measures, or else we were going to run out of coal and March can still be pretty cold in Wisconsin, so we certainly couldn't risk that. Now, these measures increased the cost of providing electricity to our customers because we're replacing our most economical source of generation with whatever else we can find in the market.

Cycle times during the first quarter of 2014 were 65 percent greater than our January through November 2013 average. Extremely significant degradation of service. The inventory at Westin actually didn't recover until May of 2014 when we had a planned outage of our largest

unit at Westin, and that's really the only thing that brought it back.

Now, initially, we had, you know, of course many discussions with the railroads. We work with them everyday. And initially, all the discussions centered on the bad weather, the winter weather, how it was affecting operations. That was the issue. However, after winter ended, rail service to Westin didn't really improve very much.

Cycle times during the second quarter of 2014 were still almost 50 percent greater than our 2013 January through November average. Now, at this point, as I stand here today, we've had a relatively cool start to summer and that's kind of helped us to some extent maintain our inventories, although we still have issues with service. And in July alone, we lost an amount of coal equal to 17 percent of our inventory target.

So, this has been an ongoing situation and it kind of brings to mind a couple of things that hopefully Department of Energy will consider

when they're looking at rail infrastructure. And the first point is sufficient infrastructure has to exist to move all traffic. Both of the railroads that are involved in the movements of our coal to Westin reported year over year gains in both volume and revenue, 2014 compared to 2013, both Q1 and Q2. At the same time, shippers such as ourselves and green shippers also were experiencing severe rail service shortages. So, this would seem to indicate there's some kind of an infrastructure issue there.

Also, we would like to see increased rail system transparency. We're trying to figure out how long these shortages are going to last, how severe they're going to be, and yet we have absolutely no idea whatever traffic beyond our own trains is moving on the rail system. So, that's a challenge for us and it really hampers our ability to minimize the cost of these disruptions to our customers. If we know there's only going to be a one-week disruption due to some isolated event, we have enough inventory. We don't really have to do

anything. If we know it's going to be eight months like this one has been, well, that's an entirely different story.

Finally, rail competition has to be enhanced, and Sean touched on this as well. There are only two railroads with access to the Powder River Basin. Not only does this duopoly situation give the railroad significant pricing power, it also gives them significant power to dictate service standards in contracts. And with service standards not being very strong in contracts, the railroads can shift services, shift resources away from coal deliveries without any penalty.

So, in short, those three things again, sufficient infrastructure for all traffic, increased rail system transparency, and enhanced rail competition are three things that I think deserve to be looked at. And I would just like to thank DOE once again for allowing me to participate in this panel.

(Applause.)

MR. HEDERMAN: Thank you very much,

Dave. Next up is Commissioner Rebeckah Scheinfeld who is with the Chicago Department of Transportation and will start the discussion from the public sector perspectives here. Thank you.

MS. SCHEINFELD: Good morning. I'm Rebeckah Scheinfeld, Commissioner of the Chicago Department of Transportation. I'm glad to have the opportunity to be here today to build upon what the Mayor kicked off this morning in providing the municipal perspective here.

As the Mayor mentioned in his remarks earlier, Chicago is a global hub for transportation distribution and logistics. We are home to the most extensive freight rail system in the country, two of the nation's busiest airports, the nation's second busiest transit system, seven major interstate highways, 300 bridges, and more than 4,000 miles of streets. The Chicago region alone has the most extensive freight rail infrastructure of any metropolitan area in the US. We see 46 percent of all containerized freight in the US, 25 percent of all US rail traffic travels

to, from or through Chicago. And our inter-modal rail yards process 12 million TEUs worth of containers every year, a level of activity that would rank our region among the world's ten busiest containerized freight sea ports.

This freight activity is part of what makes Chicago such a vibrant city and contributes to our regional economy. However, at the same time, it underscores the importance of railroad safety, particularly as it pertains to the transportation of energy resources. Demand for freight and passenger rail service in the Chicago region is expected to grow considerably from 2018 to 2040, as a number of colleagues on this panel's previous speakers have noted.

If we can accommodate this train traffic, this growth will generate an estimated 172,000 job years of employment and up to $7 billion in annual production. But to achieve this economic growth, it is incumbent upon our region to find ways to expand rail capacity while appropriately managing community impacts. Each

day, 500 freight trains, 750 metric commuter rail trains, and 50 Amtrak passenger trains travel through Chicago. While we don't have exact numbers, estimates show that about 5 to 10 of these trains each day are unit trains carrying crude oil through the city.

As I noted, the extensive infrastructure in the City of Chicago alone to handle this rail traffic is quite impressive. There are 220 miles of freight and passenger rail corridors, and these railroads utilize 863 bridges and viaducts and pass through 393 at-grade crossings. More than 55 percent of the city's land area is located within one half mile of freight tracks. Within this one-half mile radius, that includes more than 1.6 million residents, 431 primary schools, 91 high schools, 29 colleges and universities, and 313 public parks. So, this is what underscores our focus on safety in terms of thinking about the safe passage of freight rail traffic for carrying many different types of commodities and other load including the different energy sources discussed

today.

The recent domestic energy boom in the US is great for business and for energy security, and rail remains one of the safest ways to transport these goods. Crude oil shipments by rail have increased by over 400 percent since 2005, again a statistic I'm echoing what a number of others have mentioned today, and that this has been such a dramatic increase that just ten years ago we didn't see anything of this significance. And so, the policies and investments are lagging and need to catch up to this new reality.

Recent derailments and explosions that devastated communities in Virginia, North Dakota, Alabama, Illinois and Canada have called national attention to the safety gap and underscore that we can and we must do more to protect our communities. Recognizing this issue, in January, Mayor Emanuel along with mayors from across the country made a strong national call for common sense reforms that will help keep our communities safe. Just last month, the US Conference of

Mayors adopted a policy resolution calling for these same reforms.

I think it's important to note that there is no silver bullet here and we need a comprehensive approach that relies on partnerships across the public and private sector. We have to invest in building safe and efficient infrastructure to prevent accidents from happening in the first place. At the same time, we need to make sure hazardous materials are properly understood, inspected and handled, and that our emergency responders are adequately prepared in the event of an accident. We also need to make sure shippers are carrying adequate insurance to cover the costs of any potential accident.

Secretary Foxx has been working aggressively to manage these issues in partnerships with cities like Chicago, the railroad industry, and oil and energy producers. Last week, the US Department of Transportation released proposed rules that will clarify classification standards for dangerous materials;

improve specifications for railcars carrying hazardous materials and quickly phase out older, unsafe cars; set speed limits for trains carrying large amounts of hazardous materials through populated areas; and require railroads to provide information to first responders to help them adequately respond to any such incidents.

Still, Congress can do more to address the safety gap through providing the resources we need to invest in strengthening our freight infrastructure and ensuring our emergency responders have the information and resources they need. These investments should not be contentious. They create jobs, they help grow the economy, and they help protect our communities. Everyone wins.

We have a long and successful history of working with the freight railroads to maintain and improve Chicago's infrastructure while mitigating community and regional impacts. For example, the city, the State of Illinois, the US Department of Transportation, and the freight, passenger and

commuter railroads have been working collaboratively through the years on the public-private partnership known as CREATE which improves the efficiency and effectiveness of freight, commuter and inter-city passenger rail to reduce delays within the Chicago region. CREATE stands for the Chicago Region Environmental and Transportation Efficiency program. It's a 7D project, $3.8 billion plan.

If we complete all of these projects, we'll improve the national economy by making cross country shipping more efficient. Already, investments to date have reduced freight train delay in the region by 28 percent, and passenger train delay by 33 percent. Completing all of the projects within 20 years will reduce freight train delay by an additional 50 percent, and passenger and commuter train delay by an additional 66 percent.

Right now, there is no federal investment aimed at building the capacity and improving the safety of our national freight rail

infrastructure. Secretary Foxx in Congress have proposed programs to include in a new transportation bill, but as you all know, those long-term investments are on hold in Congress right now as they continue to negotiate a long-term transportation reauthorization bill. Federal investment is needed for projects like CREATE that improve our rail infrastructure, improve the efficiency of goods movement for the entire country, and most importantly, help keep our communities safe.

Thank you again for your attention and for the opportunity to address you today.

(Applause.)

MR. HEDERMAN: Okay, thank you, Commissioner. Our last speaker on this panel is Professor John Birge from the University of Chicago Business School, and former of dean of Northwestern Engineering School. Thank you, John.

MR. BIRGE: Thank you. I want to thank you all for coming to this, and thank DOE for putting this together here in Chicago which, as

you've heard, is really a hub for transportation and transportation of energy.

I'm the only academic on this panel and, as you probably know, I'm used to speaking for an hour at a time. But I'm going to refrain from that today hopefully. But I do want to do a little bit of education and, well, talk about, maybe go about a little bit, thinking about how our rail system came to be, and actually what role it's actually played in our entire economy, the incredibly important role it's played in our entire economy as well as in our policies. Much of our policy actually was formed on regulating the railroad industry. And in fact, the Interstate Commerce Act of 1887 which was focused on the railroad industry is really the basis for all of our laws that govern trade between the states. And that's really been sort of the last legacy of the railroads for a long time.

What happened later in the century was, later in the 20th century was the Staggers Act in 1980 that was referred to earlier. If you look at

it, I guess I don't have the chart, but I'll just tell you that prices since the Staggers Act came down substantially. I would say it was because of people in my profession of operations research who made the railroads much more efficient. They've come up a little bit since 2008, but in that period they went down effectively by about 50 percent.

One thing that was also mentioned about the railroad industry is that it is highly capital intensive. And that leads to, it's very hard to understand exactly how, when we just look at it, how the effects of something like regulations governing the use of coal for electric power, how that affects the distribution of that coal through the rails and impacts the utilities like we've heard here. One of the things that has happened while the coal has been decreasing overall, what that's meant is, we're showing the earlier chart, coal has gone down as a fraction of the amount that the railroads are transporting. And it's also being used in different ways.

Before, coal was basically used as base load throughout most of the country, but now we see base load being taken over by natural gas, coal being used as more of a shoulder kind of resource. And that creates a different kind of need. And unfortunately, the way the railroads are constructed, that doesn't necessarily translate directly into just, you know, delivering larger loads. It actually creates a hardship on them to be able to get and to be able to service in the way that the utilities would certainly prefer.

Since this is kind of an example of sort of the indirect impact of some regulation, regulation in one area which is good, trying to make the air fresher for us and for our children, but also having an impact in how the business is done in the area of coal, I was also going to mention about crude oil, crude oil being an increasing part of what the railroads are transporting. Although it is, as John Gray had shown, it is actually a very small part still of

the overall amount that railroads are transporting.

When we think about the policies that are governing the delivery of that crude oil, we have to think about not only the impact in terms of safety of that delivery, but what will be the alternative if we have to push that to another mode of transportation. And for example, if it were to go by truck instead of rail, then the opportunities for safety issues might increase. So, in considering that kind of legislation, we have to think about the ramifications of that in other areas besides the direct impact on the rail industry.

The other two things I'll just mention that haven't come up in terms of what rail can do for energy are some things that are being looked at here with some of my colleagues at the Illinois Institute of Technology. One is to use rail to actually transport electricity in batteries. As you probably know, there's been a great growth in terms of intermittent renewable production of

electricity using wind particularly here in the Midwest. However, we don't have the transmission capacity to take all that wind and to get it to us here in urban areas.

If you look at the Midcontinent Independent System Operator's map of prices at any point in time, you'll see great variations. A price will be minus $10, a minus $10 actually happens in one area, and then 50 miles away it will be more than $100 a megawatt hour. The reason for that is that we don't have the transmission capacity. Rail can actually provide a mode to be able to move the electricity that's being produced in one area and move it to another without having to put in expensive transmission, without having to go through that effort.

And then the other thing, just since we are in an urban area in Chicago, when those trains come in to these stations, they generate a lot of heat. That heat can be recaptured, that can be put into power. This is being done in China where they are actually powering entire blocks just

based on the energy that's produced by commuter rail. And those are the other kinds of things that we can do with rail here in the United States.

So, just too close, I'll just say I think there are many things we need to think about in terms of policies related to rail and transportation, and in particular to think about from the systems perspective so we see all the sides of the issues. Thank you.

(Applause.)

MR. HEDERMAN: So, Professor Birge, I want to apologize for not getting the slides up. There was some logistics challenge there. But all of the presentations will be up on the QER website, so anybody who wants access to this later can get it that way.

Fred, do you want to lead the discussion?

DR. HANSEN: The question that comes to mind when I listen to all of the speakers is the issue of collaboration and coordination of the

partnerships and sort of different stakeholders getting together and talking, the people who need the coal, the railroads who deliver the coal, the policymaker, the regulators. My question I guess is what do you see as the barriers to that collaboration, stakeholder partnerships, and how can the federal government help in that?

So, I'm just going to go down the line and have each one of you do that. Craig, you want to start?

MR. CRAIG: I'll take the first shot there. As far as the collaboration, I think what it comes down to -- am I still on? As far as the collaboration, I think what it comes down to is the goals. And I think the first step that we're seeing right now, what the Department of Energy is doing with the QER, I think once we come together as far as what goals we have, almost like a grassroots type of plan, I think that can work.

MR. GRAY: You know, the reality is that our industry lives in where you need to collaborate with your customers, with the

communities that you operate in, with the stakeholders that are involved with your business, or you don't last long actually in the business. You have to do it. It's part of what is the routine.

Reality is that when you're managing between hundreds of different communities, thousands of different customers, inevitably somebody is not going to get what they want. There's going to be problems in one way or another. The key is how you manage those differences. Some can be managed readily, some take much longer to work through. But it is a process that has to be continuous; it has to be part of your day-to-day business.

I'm not sure that in most cases it's one which is particularly a vibrant role for regulatory agencies. There may be an informational role at times, but the reality is that if these things don't happen on a one-on-one basis between the parties, that they're not likely to be successful if they are simply forced by

regulatory.

DR. HANSEN: Okay. Again, barriers to collaboration and what can overcome them.

MR. WANNER: Yes. I don't know if there are really barriers to communication between us and the railroads. We would talk to the railroads every single day because we have trains moving every single day. On the other hand, you know, the regulatory thing is a little bit more difficult if you will because the railroads are, you know, they're private companies.

There is regulation; there is a Surface Transportation Board. We have found that not to be a very effective way to get our issues out. If there would be some way that that could be a more effective way of maybe getting issues addressed, I think that would be helpful. But between us and the railroads, we talk everyday.

DR. HANSEN: Okay.

MS. SCHEINFELD: Again, as you noted, collaboration is key and it's not without precedent. I noted in my remarks the success of

the CREATE program for the Chicago region which has been critical to partnership between multiple levels of government along with partnership between the public and the private sector.

I think the federal role and a key action now is to provide long-term certainty and vision through a long-term transportation reauthorization bill which will have manifold impacts because it has, in the previous panel, there was discussion about how different modes of transportation are sort of siloed in thinking about it, but the fact is that the public and the private sector have competing demands on the types of investments that need to be made in infrastructure, between highways, rail, waterways, local roads, arterial roads, et cetera. All parties on the public and the private side are trying to manage limited resources and prioritize investment of resources effectively.

So, federal leadership with a long-term bill will provide help in terms of certainty for a long-term vision coupled with regulatory reforms

that can help the public and private sector collaborate even more effectively to prioritize their respective resources so that we can focus on the most productive projects or productive policy and operational changes.

DR. HANSEN: Okay, thank you.

MR. BIRGE: Yes, I think in general, communication obviously is necessary. But I think it's more than communication, it's actually understanding. It's knowing, you know, what the issues are that other people are dealing with, and particularly in this case, for example, with the railroads compared to utilities, understanding the complexity of the environments that these other collaborators operate in. And I think that takes ongoing dialogue. I think the types of things that DOE is doing are definitely steps in the right direction.

DR. HANSEN: Okay. I'm just curious, what, again I'll let everyone have a shot at this, but I'm just curious, what are the, what do you see as the major infrastructure priorities,

infrastructure development or maintenance priorities for the rail side? John, you want to start again?

MR. BIRGE: Yes. So, I think replacing the capacity that's taken from coal and that means looking at different lines, different ways in which we can connect, obviously maintaining our existing infrastructure but upgrading the remaining infrastructure and creating connections where we can actually best serve the needs of kind of the new development, particularly in the crude oil and ethanol areas.

DR. HANSEN: Okay. So, you're saying new connections and new rail lines?

MR. BIRGE: Yes. I mean I see opportunities where, for example, if we also had regulation governing the limit on the speed of crude oil, that's going to require additional rail for the offsetting.

DR. HANSEN: Okay.

MS. SCHEINFELD: In the Chicago region, one of the focuses of the CREATE program has been

to do great separation projects and limit made at-grade crossings which currently contribute to significant delays both for freight rail as well as passenger rail. So, continuing to advance great separation opportunities will be critical in terms of improving reliability which overall impacts in a positive way the cost structures for both the public and the private sector in terms of passenger rail and freight rail, as well as it's a win-win because it does improve safety significantly. So, those would be continuing priorities within the Chicago region.

DR. HANSEN: Good.

MR. WANNER: You know, that's a really good question, and it goes back to one of the points I made in my presentation where we have no idea what other traffic is really moving on specific parts of the rail system. You know, for example, you talk about, I think the State of Wisconsin actually asked the railroads at one point recently how many crude oil trains were moving through certain corridors. And through one

corridor there were five a day. Now, it's not much of the overall railroad transportation, but for people on that corridor, it's a big deal. But we really don't usually get that kind of information.

The other thing with, you know, with crude oil shipments, it's not just the crude oil, it's also the frac sand, there's a lot of frac sand in Western Wisconsin that has to move to the Bakken. That obviously takes rail capacity. There is the pipe that's used in the fracking process. So, it's more than just counting the number of crude oil trains.

But to say specifically, you know, which sightings or what track needs to be improved, it's really hard for me to say because it's opaque.

MR. GRAY: Well, I'd say that there are two or three different items that I've heard going on in the conversation, two or three different strings on it.

One of those is what was talked about by John a little bit earlier, and that is the fact

that one of the reasons for investment is the fact that the markets that we serve are always changing. You could make the argument that given the amount of reductions in coal, that there is not as much infrastructure needed there. Well, it's not a simple matter just to pick it up, the infrastructure that was there, when there are a million and 500,000 more carloads of coal on the system that's still there. It's all still there, it's just in the wrong place for where the business is now.

And quite frankly, once you get something out of sync in a rail network just like in the other network, it doesn't affect just the business that happens to be out of sync; it affects everything on that network. It is a network business. But fundamental point, the markets are always changing.

So, you always have to invest in what is, you hope, the next market, you have to invest in what you hope is going to be that change in what direction that change is going to be and what

the degree the change is going to be. All of those things are predictable at about the same level of accuracy as any other prediction, that being if you hit one in four or one in five; you're doing pretty good on it. So, you know, let's not kid ourselves that something like this is absolutely predictable or absolutely knowable.

The other thing, and I think this is important in terms of the whole issue of collaboration on this, on infrastructure, and that is we've talked about CREATE as something that is a collaborative project. One of the things I'd emphasize about CREATE though that almost makes it unique, not entirely but almost makes it unique, is that it has been one of the few picked areas where the public has actually shown up with money to do what they felt was necessary for their area, and not just shown up with one tranche of money but has been consistently in the game. And that is really hard to do for public agencies. And it's something in our industry we have a lot of respect for what's happened in Chicago because of

that.

But that brings a critical issue to the fore, and that is if the public is going to be involved in a lot of the understanding of this decision, it also has to take some responsibility. And part of that responsibility is to show up with the resources necessary to do what the public wants.

MR. CRAIG: I'm not an expert on the economy, but as far as what has happened this past year, there's multiple commodities that are being impacted, and we were just up here today discussing about coal, Dave and I. I think as far as using emergency orders for commodities that are critical to the economy, require carriers to submit long-term plans to address rail shipment growth and ensure reliable rail service, and require carriers to submit emergency contingent plans in preparation for such as the next severe winter or any crisis.

As a utility, we are required by regulation to have contingency plans to prepare

for an emergency crisis. So, I'd like to, for the QER to review that.

DR. HANSEN: Okay. Let me finish up on final words of advice. Sean, do you want to start? Final words of advice for the QER team.

MR. CRAIG: At Dairyland Power, our mission as a cooperative organization is being responsible to its members, provide reliable and competitively priced energy and services, consistent with the wise use of resources. Our core values include accountability, integrity, innovation and a commitment to community. In the last 12 months, Dairyland has been challenged with rail service and has used costly alternatives to replace our generation while we make sure we have coal in the ground.

The QER review is important to the National Rural Electric Cooperative Association, Dairyland Power and CURE for evaluating the latest transportation challenges we're experiencing to deliver coal out of the Powder River Basin. We're encouraged this review will be a step forward to

ensure all consumers in the United States can receive reliable electricity at reasonable prices. Thank you for the opportunity.

MR. GRAY: I guess if I had to look at the, you know, where do you go, what's the advice coming out of this, it's look at those things that are working and encourage them, and stay out of the way of those things that are working well and don't get involved and screw it up.

MR. WANNER: Don't screw it up, words of wisdom. Yes, I guess I would say, you know, overall, the QER, you know, you really want to keep all forms of energy available and reliable, so certainly don't forget coal. And as I mentioned, coal does have some distinct advantages, you know, the onsite inventory advantage. And we have had reliable rail service in the past, you know, for many years. It's not something that can't be done.

It's a matter of business planning and, you know, as John said, you don't always get it right but hopefully you can always get it close

enough to recover at a reasonable time frame. Obviously rail service can work. I rode the CTA train in from the airport today, got here plenty of time, thank you for that. So, we can do it. But I'd just say, just don't overlook any form of energy.

DR. HANSEN: Okay, good.

MS. SCHEINFELD: Continuing to grow economy acquires investments in our transportation infrastructure so we can continue to move energy and other supports for the economy quickly and efficiently and safely. And so, it's important that we review those changes. As has been noted, there's been significant changes in the distribution of the type of energy that's needed and how that's proving around the country. And we need to make sure that our vision for the future and the regulations that accompany that catch up to the current sort of distribution of demands on the system, and so that that federal leadership can provide overall context in which the states and municipalities can then reinforce that long-

term vision with their own commensurate partnered investments.

MR. BIRGE: My advice for the QER is, as we look forward to energy policy and the future of energy for our country, that we take a systems perspective, that we look at not just what's the immediate impact or what's the direct impact of any of our policy recommendations, but how is it going to ripple through the economy, because it's not just the rails that are networked, but really our economy is more networked everyday. And we have to think about how any action that we take is just going to have an impact and a lasting effect.

DR. HANSEN: Good, all right. Thank you very much, panel.

(Applause.)

DR. HANSEN: Could we have the final panel come up?

(Pause.)

MR. HEDERMAN: I do want to remind everyone that we will turn to the public comment right at the end of this panel.

Okay, we'll get going. Usually the third panel of a morning phase is being between the audience and lunch, but today it's between the audience and the audience speaking. So, this will be even more of a driver for us.

So, this group will address the barge and other waterway issues. We've got again users and a tanker/barge operator and then government officials. And we'll get those perspectives on the table here again and then turn to a discussion and then on to the open mic.

So, our first speaker is Marty Hettel, Senior Manager with the AEP River Operations, and he's in charge of their waterway regulatory programs. Marty?

MR. HETTEL: Well, good morning. I certainly want to thank everybody for the opportunity to address you today. A little bit about AEP River Operations before I get started in my comments. Run by American Electric Power, a huge generator of electricity in 11 different states, a huge consumer of coal and we transport a

lot of that coal to our power plants. We move about 75 million tons of coal annually on the inland waterway system.

And speaking of those tonnage, in 2012, the inland waterway industry delivered 565 million tons of commodities on the inland waterway system, commodities that keep the lights on, products that power our vehicles, materials used to produce products that we use in our day-to-day lives, products that build America, and grains that export to feed the world. And according to a study performed by the Texas Transportation Institute for the National Waterways Foundation, the inland waterway system moves these commodities in the safest, most environmentally friendly, most fuel efficient, and most cost-effective manner of delivering bulk commodities within the United States. And while our inland waterway system continues to be a reliable means for transporting bulk commodities, the efficiencies we gain by shipping on inland waterways is being challenged by our aging infrastructure.

Outages on the inland waterway locks and dams have increased from 28,000 hours in 1992 to 180,000 in 2008. That's a 543 percent increase in out-of-service time in a mere 16 years. While we've seen some improvements from 2008 to 2013, however, in 2013 we still experienced 142,000 hours that locks were out of service, meaning that's an increase of 407 percent as compared to 1992. And I don't believe it's going to get any better.

As of 2014, 60 percent of the Corps of Engineers' inventory of locks and dams, or 144 of the 242 locks are over 50 years old. Add six years to that, by 2020, 70 percent of those facilities, 169 of 242 of them will be over 50 years old. And let's go all the way up to 2030, remember that 16-year time frame, from '92 to 2008, 16 years from now 85 percent of these facilities or 207 of the 242 lock facilities in the Corps' inventory will be over 50 years old. And according to the Corps of Engineers, these facilities are built for a design life of 50

years. So, we are facing infrastructure problems as the engineers have been speaking up here in one of the previous panels.

Now, navigation is not the only beneficiary of the inland waterway system. While it's certainly true that dams hold back water that creates pools for the freight delivery, dams also provide water for municipal and industrial use. Dams create pools of water that are vital for recreational boating. Dams hold back water that's utilized by hydroelectric facilities. Dams hold back water for irrigation of our farmlands. Dams hold back waters that increase land values, and dams hold back water that assist in flood prevention during high water events. So, you can certainly see there are many more beneficiaries to locks and dams besides navigation.

Now, the recent Water Resources Reform and Development Act of 2014 which was signed into law by the President in June 10th of this year is a good start to recapitalizing and improving our aging infrastructure. However, there is one

component that did not make it into the WRDA bill, and that component that wasn't included in the WRDA bill was a legislation that would have raised our inland waterway user fee from 20 cents a gallon to between 26 and 29 cents a gallon. This additional 6 to 9 cents a gallon increase in our users' fee is being volunteered by the shippers and carriers that use the inland waterway system to help address our aging infrastructure challenge.

However, the routine maintenance needed to keep these locks and dam facilities operational, thus keeping them from needing recapitalization, we need more routine maintenance on these locks and dams. We expect to these outages continue to increase as these facilities age, and similar to your vehicle that you operate, the more years, the more mileage you get on it, the more maintenance you have to put into it before you have to recapitalize and buy a new car.

Continued escalation of lock outages can cost the consumer due to the increased delay costs

for the raw materials. In the last four years, there's been seven major lock outages that have increased shipper and carrier costs by over $240 million. These costs are passed on not only to the consumer, but can also have a negative effect on our exports as we continue to compete in a world marketplace.

Now, here in the United States, American Electric, our river-served power plants rely on the inland waterway system for delivery of fuel and environmental consumables to produce electricity and are dependent upon this inland waterway system. During the cold weather, we've heard the polar vortex brought up a couple of times today, during the cold weather in January, American Electric Power utilized every bit of the capacity we had available to feed the grid which included 89 percent of all the coal-fired power plants that we must retire next year due to the maths really. Despite the extraordinary performance of these plants during this harsh winter, they're not going to run after June of

2015, they're going to be shut down. And as these older plants at American Electric Power get shut down and other utility companies get shut down; it's going to be even more important that we avoid disruptions and deliveries of fuel and environmental consumables to the base load power plants that will be running more often in order to keep the grid supplied with power.

So, I want to summarize my comments. Number one, we need to recapitalize parts of our aging infrastructure, inland waterway infrastructure. We also need to increase maintenance on our aging inland waterway infrastructure in order to keep lock and dam facilities from falling into a state of disrepair to the point recapitalization is needed. And if we can achieve recapitalization and continue to maintain the facilities that are currently operational, our export products will be even more competitive in the world marketplace. We'll be able to keep the lights on. We can continue to build America, and consumers will able to continue

to receive the benefits of the safest, most environmentally friendly, most fuel efficient, and most cost effective means of delivering bulk commodities in the United States, our inland waterway system.

Thank you. I'd be happy and look forward to your questions.

(Applause.)

MR. HEDERMAN: Thank you, Marty. Matt Woodruff is our next speaker. He's Director at the Kirby Corporation which is the nation's largest tank barge operating company. Matt?

MR. WOODRUFF: First of all, I'd like to thank the Department of Energy for giving us an opportunity to present today because I think this is a very important discussion for the nation, and the fact that you recognize the importance of marine transportation as part of the overall energy equation for the nation I think is very good for a start.

As was stated, Kirby Corporation is the largest operator of both inland and coastal tank

barges in the US. Marine transportation, both inland and coastal, has long played a vital role in the nation's energy supply chain. Moving energy by water is not an emerging trend in any sense. We've been doing it safely, reliably and efficiently, but also somewhat quietly for generations.

And when we're talking about moving energy, we're not just talking about getting it from the well to the refinery. The molecules that go into our daily life often move many times between the well head and the consumer by water in the form of feed stocks, intermediate feed stocks and finished products, both the petroleum products as well as petrochemicals. You've heard already that marine transportation is the most efficient form of surface transportation, I won't expand on that. I think Marty covered it well.

It takes infrastructure, Marty talked about some of the public infrastructure. And whereas, you know, Marty said it might not get better, I want to believe that it can get better,

and that the WRDA bill that was just passed provides us a framework to improve our system, that if we do the funding pieces and we focus on this problem going forward, that relatively modern, or modest I should say investments, that we can ensure our waterway infrastructure will be safe, reliable, and efficient in the future so that we can continue to meet the energy transportation needs of the nation. As I said, WRDA is a good step in that direction.

But there is also private infrastructure involved. Our industry is literally investing billions of dollars, not just in terminals but especially in new vessels to meet the energy transportation needs of the nation. And you know, sometimes I hear in energy discussions people talking about, well, we don't have as many tankers as we once did, we just don't have the ship count. People focus on the ship count and really ignore the coastal barge count.

I don't think that people realize that the barge of today isn't your grandfather's or

your father's barge. Many of the barges that our company operates are larger than the tankers that served as the mainstays to the American fleet in World War II and well beyond. And so, you know, our barges, 150,000-185,000 barrel barges that we operate are really medium-sized barges. We have competitors who operate barges of twice that capacity. And so, tankers-barges really become interchangeable in terms of capacity. And so, if you're looking at one without looking at the other, you're not really looking at the picture.

The renaissance that we're seeing today in shipbuilding is hugely important in terms of jobs, which I know we're talking about energy, but jobs are important, too. Our company is currently building two 185,000 barrel tug barge units on the West Coast. The shipyard that's building the barges has provided 300 new jobs to conduct that project. The shipyard building the tugs has taken on 150 new workers to do that, and that's being replicated across the nation.

Yesterday, I heard the Admiral who

commands the 8th Coast Guard District, the Midwest, he says the Coast Guard is currently inspecting 8 to 10 new barges being delivered from shipyards each week in his area of responsibility. That gives you an idea of the level of investment.

What we're talking about really, when we're talking about energy today, we're talking about American energy independence. And I would submit that we can't have American energy independence if we don't have a domestic maritime industry to get that energy where it needs to go. The domestic energy provides national security. We maintain the shipyard industrial base that we share with the Navy, the ability to construct naval vessels. Our personnel can be diverted from our vessels to man the reserve fleet in a time of a national emergency.

Homeland security is an important issue. You've heard some concerns expressed about transportation safety. Our vessels are all American-owned, American-built, American-crewed, and that is important. Every mariner who works

for us goes through security screening. We know who those people are. The people who are moving those energy cargoes along our coast and into our cities like Chicago are American citizens, security screened. I don't think we want to turn that job over to folks that we don't know who they are or necessarily where they came from.

We, I think, are a vital part of the supply chain, an important part to be maintained. As I said, to have energy independence for this nation, we must have a domestic maritime industry. The domestic maritime industry is strong, we're building, and we will continue to meet the needs of the nation and we're prepared to work with the Department in any way we can to identify and ensure that we're doing that job.

So, I appreciate the opportunity to be here today and present. Thank you.

(Applause.)

MR. HEDERMAN: Thank you, Matt. I have at least two takeaways from your remarks. One is that water transport is not an emerging industry,

and I guess the Phoenicians would agree with that. And the other was it's the absolute first time I've heard American-crewed used the way you used it. So, that was interesting.

We'll turn to the state perspective here now, and our first speaker from Illinois Department of Transportation is Kevin Schoeben.

MR. SCHOEBEN: Great. Well, thank you, and maybe good afternoon. And thank you for this opportunity to address you today and to the Department of Energy. This is a very important matter. And if there is one word I could try to summarize my presentation is the word engagement.

The State Department of Transportation is now engaged into waterway planning. Several years ago, when we, two and a half years ago when we were developing our long-range transportation plan, our Secretary of Transportation emphasized that you can't just focus on highways and railways. You need to also include the movement of our freight on our waterways and how important that was.

And like Assistant Secretary Darcy mentioned, we had a scare in the mid Mississippi River region when the navigation on the Mississippi was threatened and the impact that would have meant on State DOTs, not just in Illinois but through all of the State DOTs throughout the region, it would have been devastating. So, that was a wakeup call for us. And since then we've been actively engaged in waterway navigation.

So, it's important to point out the Department has, we heard a lot of talk about State DOTs and level of engagement, the Illinois Department of Transportation, what is our role? Well, we have ownership as was mentioned in our highways, but we don't have ownership of the railways, the waterways, over the ports. But we feel it's in our obligation from a planning perspective that we do engage into thoughtful promotion and advocacy of our freight transportation system, and especially connecting the modal networks as well. And as was mentioned

in the previous panel, it's just basic understanding of what's going on and awareness is so important so that State DOTs, not only in Illinois but the other State DOTs get an awareness of what's happening in terms of freight mobility in the private sector.

So, with that, our role was basically somewhat defined. It was encouraging from US Congress and USDOT in administering the MAP-21 requirements. And it establishes, there are three main areas, that strategic planning is a must not only at the national level but also at the state level, and that regional collaboration also is a must, that we need to start beginning to develop our regional collaboration and freight policies to build around that. And of course, condition and performance measurements which are going to be integral to the part of State DOTs in developing freight performance measures and so that we can go back to Congress and advocate for additional funding for freight programs.

So, with that, Illinois' freight

strategy, there are simple points here and it's important and this was somewhat highlighted with the discussion on the earlier panels, getting an understanding of the commodity flows with the energy. And just two years ago when we had our state rail plan and our freight plan, the mentioning of energy independence was nowhere really to be found. And that's alarming because that just shows how State DOTs and how state freight plans need to be ongoing. It can't be something that is done every five years and put on a shelf.

And part of that is getting the ongoing collaboration from private industry, because it's private industry that must work through the supply chain. We tend to see, I tend see some of the state bureaucrats not only in Illinois but in other states, we tend to be focused by modes and promotion of whatever mode in particular. But when you talk to the private industry, they look at the supply chain. They don't even look at the modes, they look at what is mostly efficient for

their supply chain, and that's something that State DOTs need to reach out and get an understanding of that.

Identifying chokepoints, this all leads to identifying chokepoints and bottlenecks. In Illinois, we established an Illinois State Freight Advisory Committee, and Commissioner Scheinfeld is a member of that and Ben Brockschmidt back there is also and a couple of others. It's important that we get from a local perspective those bottlenecks and chokepoints at a local system.

And what I say here, and I put qualitative analysis as very important because our engineers are real good at rounding things, data sets to the nearest decimal point, but when you ask them, okay, here is a bottleneck on this particular highway or this infrastructure, why is it happening, and then they give you a blank stare. So, from a planning perspective, you know, qualitative analysis is important. To take a more wholistic view what's happening with that bottleneck, an inter-modal facility or ethanol

facility is in the area, so including that into our planning process is also important.

Supporting all freight modes in a multi-modal system is essential. And then what can State DOTs provide? And that's essentially provide modal connections and promotion of modal connections so that it optimizes opportunities for the private industry. Because if you take one particular mode out of their supply chain, of course that increases their cost of transportation.

So, this may seem like a simple model, and it basically is. But I'm finding out with part of our involvement with the National Freight Advisory Committee and Mayor Emanuel talked about the importance of strategic planning at the local level, this is so important, especially the first and last mile issues, and how that builds into the state plan and the national plan. But what I suggest to you today is that we just don't stop there.

Here, I mentioned the importance of

including the metropolitan planning organizations as well as also private industry. But regional collaboration is important. We talked about CREATE, how that's important, that was a regional collaboration and how that's a project of national significance.

But then we can't stop there when we develop a national strategic plan. If one recommendation that we can make today is that the USDOT take the lead in working with Department of Energy, EPA, Army Corps, Labor, Agriculture and US Commerce, all have a stake. I think it was Dr. Holdren that said each individual agency makes individual decisions that have ramifications that affect transportation. So, it's important that we have a national plan but also developed into a North America plan because freight mobility in Canada and Mexico is a lot different when you look at also the international perspective, too. So, part of the advocacy here today is that each level, and you have different levels of engagement, but at the federal level, not only the

state and local governments needs to get engaged in the federal planning but also the federal agencies as well.

One of the examples of a maritime collaboration is with the Council of Great Lakes Governors. And these are ten states that got together, ten governors that got together and challenged the states to get more involved with maritime navigation issues. And we are, we actually submitted a TIGER application that's going to look at commodity flows, energy flows on the Great Lakes, but it's really to help State DOTs to get more involved and do an assessment on the infrastructure needs, not only on the locks on the Great Lakes but also the ports as well.

And I can never do a presentation without including this. This is very indicative, we had talked a lot about the rail movement from Wyoming, the waterways, and of course the railways. And it's so important especially when we're talking about the barge movement, when you look at the waterways and what's absent from here

and USDOT is going to help us, is the tonnage movement on the Great Lakes. But this shows the tonnage movement on the Mississippi River, and this was a concern, as I mentioned earlier, about the point of failure, if the Mississippi were to close, what that would mean to the infrastructure on the rail and the highway system throughout the, not just in Illinois or the region, but really impacting freight mobility throughout the United States.

So, these are statistics about freight, and this is very indicative of what we see at the federal level in terms of freight growth. And the point here I want to make with waterway again is that 10 percent, even though it's 10 percent, if we were to have to trans-load that onto the other systems, it would be devastating.

So, just a brief highlight of some of the points. Illinois, we have 7 Class I railroads. I think Louisiana may have 6 or 7, but we have an extensive interstate system. And then this is a key for us and this is what State DOTs

need to get more involved in is those inter-modal connections. Well, we don't own those other modes, but at least we can help provide access because in terms of logistics for a private sector, it's not only location, location, location but it's also access, access, access. And that's something that State DOTs can help provide in terms of surface access as well as port development access as well.

This is something that was not included in our freight plan two years ago which is now going to be, and especially in light of today, is the freight movement that has moved on our pipelines, in terms of what impact other states have in this in their freight plans. And this is real important to include this because of the impacts it would have on our other infrastructure. So, we have to have an understanding of the freight movement, and in particular energy movement that's on our pipelines.

This is just a brief illustration of what's moved outbound, and clearly energy, coal,

petroleum, is almost two-thirds of what moves down the Illinois waterway system, and agriculture being a quarter percent. So, it's essential, the waterway navigation and the Illinois and the Mississippi Rivers are always important to our, not just our regional economy but also for the value of the nation.

And then in terms of energy, areas of the state that we're looking at, of course you have the oil transport coming down from the Bakken area, and then of course we have wind energy that is thriving in the central part of Illinois, and fracking, the potential of fracking down in South Central Illinois, and then of course coal being the dominant commodity down in far Southern Illinois.

And we've heard a lot of talk about locks and dams, and I could talk hours about this, but the single point of failure, Illinois is between two great waterways, there are 5 locks in the Mississippi, 2 in Illinois that were funded by Congress that were not yet appropriated. And

that's about $2.4 billion, and we're hoping with the passage of the WRDA that is freeing up funding for Olmsted, that we can earmark some real funding for the locks and dams. It's disturbing to hear today that by 2090, that the maintenance would be perhaps completed. That cannot be tolerated because it's too important to the nation.

So, point of failure is very important. It shakes the nerve of every State DOT because if we had to shut down the Mississippi or one of the locks and dams, State DOTs would then have to help deal with that impact.

And then here are some pictures of some locks and dams that are really quite concerning and disturbing. This was provided for the Army Corps of Engineers, the St. Louis or the Rock Island District.

Not only with energy but agriculture, as I mentioned, 25 percent, well, 60 percent of what moves down our waterways has grain. So, perhaps, and I suggested this to the soybean industry, that the agriculture community as well as the energy

industry need to get together with the promotion of, with advocacy of maintaining our locks and dams and modernizing them as well.

The State DOTs, the first time that five states, talk about in terms of regional collaboration, and Dr. Perry talked about this, the five states, this is the Maritime Administration at USDOT, they designate the waterways. There was an obvious admission here and it's from St. Louis to St. Paul, and we got, Illinois took the lead along with Wisconsin, Missouri and Minnesota in applying for that. And just this last week we got notice that it's going to be a designated route, and that's important because that puts it on the map within USDOT which is generally a highway-centric agency, to be branched off to a more multi-modal perspective. And this is an important corridor and so it would be increasingly important with the oil transport.

In terms of barge renaissance, there are some questions here that, you know, we're closely watching from a State DOT perspective. It's how

will, you know, how could this impact the locks and dams in terms of capacity and competition with the other, with the coal, the grain and the agricultural commodities. An important question is how this market will dictate the modal shift onto other local state and other regional networks. So, that's something that we're closely looking at as well as the impact it would have on port and river terminal development as well.

And this was mentioned about the WRDA bill, some three main points about the WRDA bill. Harbor maintenance, that was important that they finally come around to putting some real funding. That was already there but they're putting a path forward by 2025. It's important for the Great Lakes, dredging for the Great Lakes, and it's also important for dredging down south of Baton Rouge.

In terms of the inland waterway system, the inland waterway trust fund, I mentioned about the Olmsted Dam moving off budget a little bit. Hopefully that will free up funding for our locks and dams infrastructure, but a lot more investment

is needed.

And then also in the WRDA bill are two pilot programs, one for public-private partnership opportunities that we are also looking at. And then also they included a WIFIA program which is similar to the TIFIA program on the highway which is a federal loan program to entice public-private partnerships.

This slide, I just wanted to end with this because federal government, even though the MAP-21 bill was extended until the end of May, there are some freight provisions here that we all need to pay attention to. Mayor Emanuel talked about the first mile and the local issues, that's establishment of urban freight corridors that was left out of the map earlier this year. That's going to be essential, inter-modal connectivity, the establishment of freight committees and empowering the state freight committees to approve of the state analyses which are real important. But one thing I want to point out here is up to 10 percent, in the Senate Bill proposal, up to 10

percent may be used for rail and port facilities, so that is going to be something to watch for in the new reauthorization bill when it expires in May.

So, the last thing I wanted to leave, and I borrowed this from a colleague of mine, is why is planning necessary? And you look into the future and you see all these kinds of projections in 5, 10, 20 years from now. Well, 26 years from now, if you look back with what Shanghai was, what it looked like in 1987 and what it looks like today which is quite alarming, and if you compare the two, it's really remarkable. And it's a port city, it's an inter-modal facility, but it just shows that with proper planning, and it's really a scare tactic, too, that the United States really, we're at a crossroads here with our infrastructure with not only our waterways, our railways and our highways, that you know, we need to come together as a nation with our infrastructure. Thank you very much.

(Applause.)

MR. HEDERMAN: Thank you very much. We've heard a little bit about North America, and I think Mike Forde will be speaking to that as Chair of the Illinois International Port District. And I do ask the last couple of speakers if you can try to stay the allotted time. Otherwise, we're going to be really crunched on in discussion.

MR. FORDE: Good afternoon. Thank you to the Department for putting this together and inviting me to speak. My name is Michael Forde, I'm the Chairman of the Illinois International Port District which operates the Port of Chicago located on the southeast side of the City of Chicago. We have facilities on both Lake Michigan and Lake Calumet on the southeast side.

Chicago is the nation's busiest inland port. The Port of Chicago is a critical part of Chicago's transportation hub network. The Port of Chicago has somewhat unique characteristics. We are the crossroads of the inland waterway system and the Great Lakes. We are located within the

city limits of the third largest city in the country, located just 12 miles from Chicago's central business district. And we are served by three separate rail lines including two Class I rail lines. We're also surrounded by a whole network of interstate highways.

Chicago is part of the Great Lakes navigation system of course, located in the center of the country's industrial and manufacturing heart. The Great Lakes economy which consists of the eight states and one Canadian province that abut the Great Lakes has a combined GDP of $4.9 trillion, responsible for 46 million jobs. This would rank the region fourth in the world in GDP, behind only the US, China and Japan, and ahead of Germany, France and the UK.

The iron, steel, cement manufacturing, agriculture, and energy sectors all depend on shipping through the Great Lakes system. Shipping for these sectors means jobs for the region and translates to lower cost to energy, steel and concrete. In addition, maritime shipping offers

significant environmental and congestion benefits relative to other forms of transportation. Kevin touched on this a little bit, but a single thousand-foot Great Lakes carrier hauls the equivalent of seven 100 car trains of cargo, or 3,000 trucks with 25 ton capacity. Likewise, a 15 barge tow moves the same tonnage as over a thousand trucks.

Now, as you know, oil and petroleum products are increasingly being moved by rail, truck and barge. These shipments are almost doubled in 2012 and are continuing to increase, moving crude oil from shell formations in North Dakota, Texas, Canada and elsewhere to the US refineries. In 2011 and 2012, oil delivered to refineries by barges increased 53 percent nationwide.

The recent growth in domestic energy production has been great for economy, our businesses, and our energy security. At the Port of Chicago, we have not yet seen these dramatic increases in energy shipments that other

facilities have seen. Energy products comprise about 28 percent of cargo on the Great Lakes overall, and just about 10 percent at the Port of Chicago. But we are seeing early signs that we will see increases in that level of energy shipments at the port, especially as we see transfers between crude shipments by rail to truck at our facility.

Our policies and investments need to catch up to this new reality. We need to make investments in our transportation infrastructure, including our ports, to ensure that we can continue to grow our economy safely and efficiently to meet our current and future energy demands. Now, these dredging and port investments are key for both Chicago, the local economy, and the Great Lakes regional economy.

There are 60 federally maintained deep-draft ports in six connecting channels that the Corps of Engineers must dredge on the Great Lakes, including 25 of the nation's top 100 ports by tonnage. The Corps reported that almost 30

percent of commercial vessels arriving in the US ports are constrained by inadequate channel depths because of inadequate funds to maintain our maritime infrastructure. The Corps estimates that it needs more than $200 million to restore Great Lakes ports and waterways, though the Great Lakes have only received $20 to $30 million in recent years to address these issues. The Corps is also responsible for dredging 1,200 miles of navigable waterways in the Upper Mississippi River system including the Illinois River. The Illinois River system that connects Chicago to St. Louis has eight locks that currently require over $500 million in immediate investment.

While the Port of Chicago may be different from other ports, in some ways our needs are very typical of any ports. Specifically, the Port of Chicago needs infrastructure investment to support the growth in trade and goods shipped through the city each year. For instance, we have a 300,000 foot long timber dock wall that was built over a hundred years ago and requires

substantial investment. The water level changes that we've seen in Lake Michigan in recent years have accelerated the need for repairs at our facilities. Low water levels and inadequate investment in dredging have caused some harbors in the Great Lakes region to close in recent years. And dredging continues to be a major issue for us at the Port of Chicago.

Congress took a great step toward addressing dredging issues by passing the WRDA this year with the important fixes to the harbor trust fund distributions and special attention for the Great Lakes navigation system. Under this reauthorization, more harbor maintenance trust fund revenue will go toward harbor maintenance and will continue to increase until 2025 when we hope 100 percent of the harbor maintenance trust fund will be used for critical harbor infrastructure projects. The WRDA also reclassified the Great Lakes navigation system as a unified body which puts the Great Lakes on equal footing with the country's other water systems and will help

prioritize these regional projects. This new classification will improve harbor dredging across the Great Lakes and help shorten the dredging backlog that has held back our growth at the Port of Chicago and throughout the Great Lakes.

As this new funding becomes available, we're looking forward to working with the Corps on new projects to bring Chicago's port infrastructure in the 21st century. These investments are needed for Chicago and the country to stay competitive in the 21st century. If our ports are not prepared to handle our energy and other transportation demands, we will fall behind. Thank you.

(Applause.)

MR. HEDERMAN: Our last speaker today is Carl Bentzel from DCI Group.

MR. BENTZEL: Thanks. I don't know if it's a blessing or a curse to be the last person, but if you're running over it's probably a little bit of a curse.

So, I am with the DCI Group. I'm here

speaking from my personal perspective. I worked for 15 years on the Senate as a counsel working on surface transportation and maritime policy. So, I actually worked on railroads, trucks, pipelines and maritime, but the maritime issues are near and dear to my heart.

But I wanted to talk a little bit about the intersection of energy policy and maritime and what it's meant. My fellow panelist talked a little bit about the growth, but it's interesting that the, what's happening in energy really is having a remarkable effect on the maritime industry. And what we've seen is the traditional pattern of production of energy in the United States change.

Traditionally, we got most of our energy from the Gulf of Mexico, Alaska, but now we're seeing places like North Dakota, Ohio, potentially New York at some point, California, providing energy. And what this means is this means a stress on the transportation structure which has been designed really primarily to move product

from the Gulf Coast as it came in to other areas. So, we're seeing a challenge. But it's also an opportunity, and it's an opportunity because we are seeing economic growth in areas of the country that have not had that. And we're seeing an opportunity for the transportation segment to grow their operations in new areas.

I was talking to someone who manages the Ship Builders Association and he told me that the order book for shipbuilding in the United States right now is at a 30-year high. And as Matt mentioned, the barge builders are actually going from where they were building one and a half barge a day to 2.5 barges a day, so they're doubling their employment at some of these facilities. This in large part is attributable to, for the most part is attributable to the energy production in the United States and what that's meant.

The maritime community is diverse and segmented. You have your coastal shipping, large tug barge operations. You have tankers operating from the Gulf of Mexico to the refineries. We

have international shipping coming in. These are the container markets on the coast.

And they're all impacted by energy. And it's not just the production of bulk commodities, it's oil and gas. It's the movement of sand that's used in the production of gas. It's the movement of piping. It's the movement of equipment that's used in it, and the waste products that go out.

So, all of these elements have impacted the transportation system. Although there has been some stress on the rail, all of this is a result really of the energy production and the changing patterns of energy production. And I anticipate that there will be opportunity both for growth and challenges in how to deal with this.

A little statistics that I wanted to talk about just in terms of the scope of the industry. The United States, in 2008, the statistics that we have are always askew but it takes a couple of years for it to catch up. But in 2008, 48 percent of all international trade was

transported by sea. 12 percent of the domestic trade was transported by water in the United States. And it represents about $30.9 billion of gross output and in employment of a quarter of a million workers. And that was done by the Maritime Administration.

More recently, a PriceWaterhouse study was produced by the Maritime Administration that said that the domestic maritime industry supports nearly 500,000 family wage jobs and generates close to $100 billion in economic output. And this sort of assessment, as I like to say, is those people that work in the industry but those people that are connected to the industry. And maritime is not like rail, they can't get to Wyoming, they have to have a canal, they have to have a river. But they connect to those nodes, so the shipment of maritime cargoes is integrally connected to the terminal, to the railroads, to the trucks, so it's part and parcel.

I've had an opportunity to visit most of the big ports there, and when you go into a

meeting about a port, you're going to have railroad interest there, you're going to have trucking interest there, and you're going to have maritime interest and you're going to have shippers there. But what I would like to talk, just in conclusion because I'm wrapping up and I see the light is changing colors, is some of the policies that will impact the transportation challenges in that which the quadrennial review considers in the future. And I see these as substantial ones.

Permitting issues. Permitting issues in the United States are changing. We've seen, for instance, they were trying to permit coal terminals on the West Coast, and for the first time people were calling for life cycle emission evaluations as part of the permitting of a terminal. Traditionally, when you looked at a terminal, you did an environmental review, you looked at the proximate and local issues related to what the population has, and you should address health and safety issues. But there are calls for

now assessments of what the product that went through that terminal created in terms of carbon emissions, what it created while it was being transported, and what it will be assessed to be used for in the future.

And this is an issue that will be problematic for the transportation world as they go through the issues of permits. You've seen it with L&G where we've never exported gas, we can't, it's a stranded product. But we're looking at that possibility. And permitting, the permitting process and the challenges of how we do this is going to impact how well we can continue to drive energy production in the United States, oil and gas production in different areas of the United States, whether or not we do offshore production in the South Atlantic.

But one thing I would stress is that all of these challenges and changes have potential growth. And so, how we as a nation choose to take steps to address those will affect whether or not we can capitalize on the resources that we have

and potentially can use both domestically and internationally. It's funny, when you look at the balance of our trade, the biggest gap that we have is energy. And now we're getting to a point where we are going to be potentially exporting energy, and that's a big change.

And so, with that, I'll let everyone get to the questions and get out of here. So, thanks.

(Applause.)

DR. HANSEN: Okay. We're running a little behind, so we have basically room for one question. So, I'm going to ask, the most important is QER really taking on a huge task. From the maritime point of view, what is your advice for them? What could you offer them in terms of words of wisdom, recommendations, advice? Marty, let's start with you.

MR. HETTEL: Words of wisdom. National freight policy is certainly the route we need to head down. We've heard today about the congestion on the rail, the congestion on the roads. There is capacity in the inland waterway system. That

capacity needs to be utilized.

We can and will get through this maintenance issue. You know, these locks and dams weren't built in a day. It's going to take time to repair them. But the capacity is there and the inland waterway system has to be part of that.

The collaboration between these agencies is critical, between the Department of Transportation, Energy, and the Army. If you stop and think about it, the Department of Transportation primarily is involved with air, rail and interstate. They do have a Mari-Ad division but it's not a very large division. But yet the Corps of Engineers is the one that maintains the entire inland waterway system. Collaboration between those government entities is crucial.

MR. WOODRUFF: I think if you're looking for a good bang for your buck, a great return on investment for the nation, that the nation needs to invest in our ports and waterways. If you remember the slide we saw earlier that looked at

the needs for the highway system and compare that to the number that was posted for the waterway system, it's rounding error is what it would take turn this system into a system that will be reliable in perpetuity.

You know, we, I hear that the discussion and it was mentioned today about 50 years, I'm here to tell you that 50, you're not quite over the hill yet. We have some 50-year-old assets that still have some life in them. But they do require a bit more maintenance and, you know, I think that we'll see some of those locks and dams serving this country very well when they cross the 100-year-old threshold if we put the proper maintenance into them, and where appropriate and necessary recapitalize those systems.

So, we've got a plan. That plan was brought forth in the WRDA bill we've all talked about. It's time to implement that plan to get on about the business of focusing on those things that need to be done now to keep the system reliable, and then continue that maintenance as we

go forward to ensure that we're addressing the government's part of the equation in terms of marine transportation infrastructure. And we in industry will do our part and invest in our infrastructure and our people to ensure we meet the transportation needs of the nation.

MR. BENTZEL: US energy production and resources are an opportunity for us. We are at a position in our economic development where we can take advantage of it or we can lose the opportunity. And I would hope that as you move forward, that you make some recommendations, you identify what the impediments to safely produce and transport and utilize these resources. If we don't do it right, someone else is going to produce energy and natural resources and ship it to us.

MR. SCHOEBEN: Assistant Secretary Darcy mentioned today and Secretary Foxx mentioned the other day at his town hall meeting about how they are working together with permitting and streamlining permitting, and that instead of

looking at it sequentially, they're looking at it more concurrently. And I would suggest that it should perhaps not just stop at permitting, but it also should be with planning as well. When you look at the energy reports from the Department of Energy, the Corps does a series of reports on the Panama Canal expansion, Department of Agriculture; they do a lot of reports on grain mobility and even multi-modal studies that relate to rail and waterways which is important. Then the US Commerce does their own on their supply chain.

So, I think perhaps the USDOT can pull all those folks in together and from a planning perspective put together, as I suggested, not only a national plan but also a North American and international plan as well.

MR. FORDE: I would echo what Marty said and say that it is especially true in the Chicago area. The projections for what the roads and the railroads will look like 10-15 years down the road in terms of congestion with trucks and trains of course are really quite terrifying. And while

that is going on, we have this capacity on the waterways. And to unlock, you know, to really fully realize that potential, it does require investment in dredging, in the port facilities. But everything that Marty said is very true, and especially true for people like Kevin and myself who are looking at this from a local perspective.

DR. HANSEN: Okay. I was told that I shouldn't shortchange you guys, and so I have one more question. I ran out of difficult questions so I'm just going to ask about financing and paying for all this. You know, the WRDA, all of you said that WRDA is a good step forward. But I think most of you have said it's not going to pay for everything. Where is the rest of the financing? Is there room for creative financing? How do you stimulate investment? Obviously there is a good ROI in some respect on this. Where does that extra money come from? Marty, let's start with you.

MR. HETTEL: If I had that number, I'd be in Congress with that answer. You know, I hate

to digress. We've heard about Olmsted Lock and Dam, when you get a facility that's authorized for $775 million in 12 years and the final cost is $3.1 billion, and it will almost be 28 years before completion, that's what started the whole problem on not recapitalizing our inland waterway infrastructure. We put together a capital development plan with the Corps back in 2010, parts of that are in WRDA, and that's where we, you know, our industry said enough is enough. We've shared our portion of Olmsted.

As far as the funding, you know, the public doesn't realize what this inland waterway infrastructure does for them. To move a ton of freight $11 a ton on average less expensive than truck or rail keeps your electricity bill lower. It keeps your fuel costs lower. It keeps your white goods, your washers and dryers you buy at your house because the raw materials that are delivered to build those is less expensive.

It's not, you know, everybody talks about billions of dollars, we need about $8

billion to, you know, according to the 2010 schedule, to really make our infrastructure a lot more reliable and resilient. Think about the population of this country that benefits from the waterways, let alone the recreational, the municipal water intakes, everything else that I mentioned that is an ancillary benefit to the nation.

So, I wish I knew where the funding would come from. We're willing to step up and pay more to help the problem. We just need to build some facilities on time and on budget.

MR. WOODRUFF: For our coastal ports, the moneys are there already. We're collecting a harbor maintenance tax, we're putting it into a trust fund and we're not spending it on the work that that tax has collected to pay for. And the WRDA bill puts forward a plan to increase the spending and get us to the point where we will maintain our coastal ports the way we should.

To echo what Marty said, we need to step back and not just look at the inland waterway

system as the inland waterway system, but we need to look at the nation's transportation system and, with reference to what we're talking about here today, our energy transportation system and infrastructure and say where do we put the money to get the benefits that we need. There are many beneficiaries, and I'd submit one of the beneficiaries of a strong inland waterway system is the highway system that isn't having to accommodate the cargoes that move best by water. And so, I think that we just need to recognize the national importance, as Marty said, and then have the national will to put the modest, relatively modest investment we need into the system.

MR. BENTZEL: I would divide it into two segments in terms of financing, public financing for those elements that are controlled by the federal government or they have the mandate to manage. On that segment, I would say that we have a problem in Congress, both sides, Republicans and Democrats. I've worked on transportation policies for 25 years, and for the most part the industry

and the shippers have been willing to both increase the amount of their user fee in gas for highway programs and maritime programs if those funds were used for infrastructure. And despite the fact that the industry and commerce and all of the folks are supportive of those, those members of Congress are scared to vote to increase that.

And I think people need to put pressure on them and say instead of taking no tax pledge, increase tax pledge, let's take a look at funding what we need to fund on both sides. And so, that's the only thing that really is going to address the amount of funding that's needed for the public infrastructure. You can do some stuff with public-private partnerships and such, but that's necessary. And the industry supports it.

On the private side, I think you have some issues with the permitting process. If we don't get that set up, as I mentioned, there was five coal terminals for export that was considered at one point, now you're down to three. And that's because that process, industry can't tie up

their money for that long in trying to invest in something. They have to have some certainty on what their investment is going to go in.

MR. SCHOEBEN: Your question kind of reminds me of a question that we posed the Chief Administrator Chip Jaenichen just a few months ago, and we asked him, what's the one thing that you think is really important and that you would try to do. And without hesitation he said a Superbowl commercial. If you don't get, because the inland waterway is deemed the invisible mode of transportation, I mean it just serves to point out that, you know, it's unfortunate but the inland waterway system and the navigation is so important to our national economy and it serves to the point that it's just not well respected and appreciated the way it should be.

In terms of the WRDA bill, public-private partnerships was included. Congress did not go with the additional tax on diesel fuel, but instead they went forward with these 15 projects in the WRDA. General DeLuca who is the overseer

of the Mississippi River Area said, you know, last month, because you know, you really need to challenge the State DOTs to think big, take a step back and realize how important this is to the nation, not just to your own region, and perhaps suggested that these 15 projects be pulled in together as one so that we get that national attention. But nonetheless, there are 15 projects and I think if you do a public-private partnership, Congress is used to doing projects by incremental, I don't think you can do that with the Mississippi because when you go to the shippers, you can't really advocate them to fix one particular lock and dam on the Illinois River because they're going to want to know what's going on with all the locks and dams and the infrastructure all the way down to the New Orleans.

So, it's a system approach, particularly on the inland waterways that you've got to acknowledge that it's a difficult challenge for public-private partnership. Perhaps the

opportunities for public-private partnership could be on their port development. That could perhaps serve to utilize the federal program. But the key there is innovative financing is not funding, you have to come up with the actual, you have to pay back the loans that you get to make the public-private partnership work.

MR. FORDE: I agree with what Kevin said. I mean I think in particular the need for a systematic view on this, on the funding structure I think is very important.

DR. HANSEN: Okay. Well, thank you very much, panel.

(Applause.)

DR. HANSEN: I would now like to invite the EPSA representatives to come up to the podium. This is the public comment section.

(Pause.)

DR. HANSEN: Okay. I guess we're just going to start with the public comment here. Bill is up here from DOE EPSA, so he will be taking the notes, and so let's start off with Tucker Perkins.

Oh, John Richards is coming up. Sorry, John.

Okay. Is Tucker Perkins in the room?

SPEAKER: No, he left.

DR. HANSEN: Okay. How about Chris Smith?

SPEAKER: It looks like he left.

SPEAKER: He was on the panel.

DR. HANSEN: Okay. Jeff Petrash? There you. Petrash, did I get it right?

MR. PETRASH: Petrash, Jeff Petrash.

DR. HANSEN: Petrash.

MR. PETRASH: I'm with the National Propane Gas Association. And I want to make a couple of points for you.

As the first panel noted this morning, and particularly Secretary Moniz and his colleagues, propane had a very difficult winter as a result of the grain harvest, the polar vortex and really quite importantly the replumbing of the energy infrastructure involving both natural gas pipelines and natural gas liquid pipelines. We are seeing a number of natural gas liquid

pipelines going out of service in the market area. Most importantly, in the Upper Midwest, the Cochin pipeline which no longer will be bringing propane into Minnesota, Illinois and Wisconsin. The results of that is that our business will have to look much more heavily at rail and at motor carrier modes of getting propane to these Upper Midwest states.

This past year, we had some significant difficulties with those modes of transportation as well, particularly delays with rail. And I think there's a real question about the capacity of the rail system and a real need for oil pipelines to be bringing oil out of the Bakken instead of the virtual rail pipelines. There is considerable concern in the Upper Midwest about whether the rail system will be able to meet the heating needs of states like Minnesota and Wisconsin.

Similarly, on trucks you heard about hours of service waivers that we had this year, and there have been two Congressional bills expanding those powers in the spring and summer.

But there is also a big issue about weight limits which basically cannot be waived by the federal government, almost anything short of a hurricane or nuclear war. And we had instances with trucks in Janesville, Wisconsin not so far from here waiting in line 12 hours to fill with propane from terminals, and then leaving with less than a full load because of weight limits.

So, the bottom line is, and we'll be submitting comments to you, both motor carrier and rail are extremely important for the winter propane situation, particularly in this area and farther north, also somewhat less for New England. Thank you.

DR. HANSEN: Okay. Is Lee Hutchins? Okay. Then I'm going to open it up. Is there anybody else who would like to make any comments to EPSA here?

Okay. Then I'm going to officially close this meeting. Do you want to say some final words here?

MR. HEDERMAN: Okay. I just want to

point out that anyone who wants to add written comments, please submit them into the record. And all of the information presented today will be put together. And thank you very much for your input and for staying around and listening to the whole thing.

Okay. So, the site, if you want to submit, is qercomments@hq.doe.gov. So, thank you again and well done.

(Whereupon, at 12:55 p.m., the QER meeting was adjourned.)

CERTIFICATE OF NOTARY PUBLIC

I, RONALD LeGRAND, SR., the Court Reporter before whom the foregoing proceeding was taken, do hereby certify that the proceeding was recorded by me; that the proceeding was thereafter reduced to typewriting under my direction; that said transcript is a true and accurate record of the proceeding; that I am neither related to nor employed by any of the parties to this proceeding; and, further, that I have no financial interest in this proceeding.

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