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DEPARTMENT OF ENERGY

IN RE:

QUADRENNIAL ENERGY REVIEW

NEW ENGLAND REGIONAL ENERGY

INFRASTRUCTURE CONSTRAINTS

PUBLIC MEETING NO. 2

BEFORE:

RICHARD SCHEER
LEVI TILLEMAN, DOE-EPSA
COLIN BISHOPP, DOE-EPSA

OFFICIALS PANEL:

GOVERNOR LINCOLN D. CHAFEE
SECRETARY ERNEST MONIZ
MELANIE KENDERDINE

RHODE ISLAND CONVENTION CENTER
One Sabin Street
Providence, Rhode Island
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9:03 a.m.

A P P E A R A N C E S

PANEL 1:

Anthony Buxton, General Counsel, Industrial Consumer Group

Kevin R. Hennessy, Director, Federal, State & Local Affairs, New England Dominion Resources, Inc.

Joseph Rose, President, Propane Gas Association of New England

Michael Trunzo, President & CEO, New England Fuel Institute

Andy Ronald, VP-Commercial Development/National Accounts, Crestwood LP

PANEL 2:

Marion Gold, Commissioner, Office of Energy Resources, State of Rhode Island

William McCourt, Executive Director, Rhode Island Manufacturer's Association

David Caldwell, Secretary, Rhode Island Builders Association

Scott DePasquale, President & CEO, Utilidata, Inc.

Margaret Curran, Chair, Public Utilities Commission, State of Rhode Island

P R O C E E D I N G S

MR. SCHEER: At this point, I'd like for the officials panel to come on out.

So let me begin by telling you who I am. My name is Rich Scheer. And I'm the facilitator here today.

As our panel comes out, I'd like to welcome everybody to the Public Meeting No. 2 of the Department of Energy, Quadrennial Energy Review.

And as you all know, the focus of our session today and then one later, the second part in Hartford, has to do with New England regional energy infrastructure constraints. That's our focus.

Before we get started, I have an announcement to make, and this is an official one.

Pursuant to the Federal Advisory Committee Act. I need to tell you that the purpose of today's meeting is to ask for your individual input or your organization's input regarding New England's regional energy infrastructure constraints and to provide a forum to exchange 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 the

topic.

The object of the session is not to obtain any group position or consensus. Rather, the Department is seeking as many recommendations as possible from all individuals at this meeting.

Understood?

Great.

And with that, I would like to introduce Governor Chafee.

GOVERNOR CHAFEE: Thank you, Rich.

MR. SCHEER: He's going to lead off the panel.

GOVERNOR CHAFEE: Thank you.

Thank you. Welcome Secretary Moniz, and thank you to Senator Reed for ensuring that the Department of Energy hears from Rhode Island.

On behalf of Rhode Island, I would also like to thank President Obama for his focus and attention to this issue.

As Rich said, the Department of Energy is holding a series of public meetings throughout the nation to discuss related Quadrennial Energy Review.

And QER was established earlier this year by President Obama to assess the nation's entire energy infrastructure and develop a comprehensive strategy

for affordable, clean and reliable energy sources.

The first phase of the QER to be completed January 31, 2015 focuses on infrastructure for transporting, transmitting and delivering energy. And this is very important to our economy, of course, and to our environment and to our quality of life. That's why we've been working very hard here in Rhode Island.

And as you know, in New England and here in Rhode Island, we are facing significant challenges in our energy sector.

New England does have some of the highest energy costs in the nation. And here in Rhode Island, we are continuing to see rate increases. Our increases are primarily driven by pipeline capacity constraints.

You hear it all the time: We are the end of the pipeline.

However, the problems become more pronounced in recent years as New England has increasingly transitioned over to natural gas for home heating as well as electricity generation.

Unfortunately, our pipeline capacity has not kept pace with this transition and the demand.

So when the temperature drops, as it did this winter all too frequently, we turn up our heat,

which of course, you have -- utility companies have to comply to make sure the houses are heated, and so the transmission capacity for natural gas, the wholesale price for natural gas spikes and it shows up in our electricity bills.

So last December, we saw 12 percent residential and 23 percent commercial rate increases, primarily driven by pipeline capacity constraints.

So without action, we can expect this price volatility to get worse, not better.

The regions's coal-fired power plants and aging nuclear generators are entering retirement, which is expected to increase our use of natural gas rather than reduce it.

At the same time, so many are not only are going to electricity generation, natural gas, but also to home heating.

So to put it simply, we cannot expect our economy to recover and grow with energy costs continuing to have these big price spikes.

And this is a regional problem. It requires a regional solution. And it is one that is so pronounced, it has brought together Democratic and Republican governors from across New England to take a look at our infrastructure and available resources to

determine an environmentally economic path forward.

My New England counterparts and I are working together in our regional energy infrastructure initiative. In our position to state energy efficiency, local renewable energy programs, it is critically important that we make these investments in our infrastructure.

It is equally important that we simultaneously capitalize on low- to no-carbon resources to our north, such as hydropower, which will improve energy diversity and ensure that we are making appropriate investments to secure a clean energy future for our state.

I am deeply committed to working with the other New England states to make these investments in our resources and infrastructure.

We do have legislation that will position Rhode Island to fully participate in this effort by empowering our utilities in collaboration with appropriate state agencies to advance regional national -- natural gas pipeline and north/south electric generation transmission.

And of course, we continue to support wind and solar power in our energy mix.

This isn't an easy path, but we appreciate

the support of the Department of Energy and our congressional delegation and the Obama administration as we work to achieve this initiative.

Over to your questions.

Thank you.

MS. KENDERDINE: Thank you, Governor. Thank you all for being here today.

My name is Melanie Kenderdine. I run the Energy Policy Systems Analysis Office at the Department of Energy. Our office is home to the executive secretary for this large White House led effort and we will be managing the interagency process, which is substantial. And we are also doing the analytical work for the QER.

I am here today to introduce Ernest Moniz. He is the U.S. Secretary of Energy. He was sworn in last May, just a little under a year ago.

Prior to becoming Secretary of Energy, Secretary Moniz was the director of the MIT Energy Initiative.

I had the pleasure of working at MIT with the Secretary for about six and a half years.

The MIT energy initiative, as many of you may know, I think is the premiere energy initiative at academic institutions across the country.

While he was the director of the energy initiative, among many things, Secretary Moniz ran several future-of studies. Those were multi-disciplinary, multi-year studies.

He did the future of coal, the future of nuclear, the future of natural gas, the future of the nuclear fuel cycle; looking at all of these fuels and processes in a carbon-constrained environment.

So those were highly influential studies and paved the way for enormous focus of the Secretary's and mine on energy policy and rigorous energy policy development.

Prior to that, Secretary Moniz was the under-secretary of energy. I had the pleasure of working with him there as well.

He was deputy at the Office of Science and Technology Policy prior to that and spent four years on the faculty at MIT.

While he was at MIT and the director of the MIT energy initiative, Secretary Moniz was on the President's Council of Science and Technology.

And in 2010, late 2010, PCAST released a report recommending that the government -- federal government conduct a Quadrennial Energy Review. And the Secretary said -- has said to me that he, as part

of PCAST, was able to toss the baseball on the QER. And he's now the Secretary of Energy and he is here to catch the baseball.

And the QER is -- that recommendation in PCAST was a recommendation that the federal government have energy policy that is based on data and rigorous analysis. And that's what we are doing. And it's exciting to be working on this effort.

Again, thank you all for coming today. And I want to introduce you to Secretary Ernest Moniz.

SECRETARY MONIZ: Thank you, Melanie and everyone else.

I acknowledge and thank Governor Chafee and Senator Reed.

First of all, their very participation here, I think highlights the importance that we attach both to the Quadrennial Energy Review and to the, as I will say a bit more about, the very strong regional focus that we have.

As the Governor said, New England is one of the end-of-the-pipe, end-of-the-line regions of our country. And so we will be exploring the very important regional variations that we -- that we see in front of us.

It's in some sense ironic that as we know

the United States overall, first of all, we have an abundance of new hydrocarbon resources and unconventional gas and unconventional oil. At the same time, we are lowering our CO2 emissions.

And yet, when we look in different regions of the country, like New England, we see very, very different challenges as we try to address simultaneously the economic energy security and climate risk mitigation challenges that we need to bring together.

So the Quadrennial Energy Review -- and I won't spend a lot of time here -- but the original motivation and the continuing motivation is that we need to address all of those issues: economy, environment, security, and different parts of the federal government within the Department of Energy. But essentially every other agency in the government has got important equities and stakes in one or the other of these major overarching drivers.

So the whole point here is to bring together all of those equities, all of those perspectives into a coherent and hopefully therefore sustainable energy policy, working with the Congress, but informing it through a very strong regional focus for the reasons that we've already described.

In fact, the -- another message that we have seen just in the last couple of years, how extreme weather, we can argue or not here, and its connection to global warming.

But the fact of the matter is whether it's Hurricane Sandy in 2012 or the polar vortex of 2014, and there are other examples; we have seen the vulnerabilities of our energy infrastructure as well during these kinds of events.

So in 2014, the decision was made. Our focus in the Quadrennial Energy Review is on the transmission, storage and distribution of energy, electricity and fuels, and that's going to be a strong, again, infrastructure focus.

Now, we've -- I've talked about the extreme weather implications there. But we can't forget another focus of integration:

extreme weather, modernization to have greater resilience in the 21st century, cyber threats, physical threats, interdependency threats, such as in Sandy when fuels couldn't be moved without electricity.

So the whole spirit of this Quadrennial Energy Review is also looking at multiple factors and how we must integrate them into a sound policy while

looking at our economic, environmental and security interests.

So that, again, is the major focus.

Finally, in looking at these issues, we will also have to be informed by an international perspective.

One part of that is North America. The Governor, in fact, mentioned hydro from Quebec. Is that part of our solution? Because certainly gas infrastructure is an issue for New England.

But of course, ultimately what we are looking at is providing heat, light, mobility and a good business environment. And we have to look again at multiple ways of accomplishing that.

In fact, in the -- one good example during the polar vortex period, New England ISO, I think deserves a lot of credit for the way they had the preparations in place for fuel switching.

So whether it's -- not whether it's -- it's probably all of the above. Its more gas infrastructure. It's fuel substitution possibilities. It's renewables, domestic and imports. All of these options come together to supply the services that ultimately are what drive us.

Finally, on the international, beyond North

America, we are seeing -- frankly, the Ukrainian situation today emphasizes another point. The energy insecurity of our friends and allies is a national security issue for us. So we have to take this broad perspective.

And this year, with our focus on U.S. energy infrastructure, we are trying to integrate all of these issues.

So I want to leave time for discussion and just introduce Senator Reed, who will say a few words.

I don't need a biography of Senator Reed in Rhode Island, but I just want to say that, first of all, actually, you all know his West Point, 82nd Airborne background. And Senator Reed is one of the major figures in the entire security discussion.

I didn't say it, but the Department of Energy does have some security responsibilities, such as nuclear weapons, nuclear proliferation, and the nuclear Navy is a certainly a passion of Senator Reed's. So on the security side, he is a major partner and a great friend.

I might also mention as a side, Senator Whitehouse, of course, is also one of the leaders in climate in particular.

So this state is playing a major role, and

again, Senator Reed is someone that we greatly enjoy working with.

So, Senator.

SENATOR REED: Well, thank you very much, Mr. Secretary.

I want to first thank Melanie for her leadership. She is taking this Quadrennial Energy Review across the country and making it work. Thank you very much.

And I'm particularly grateful that Secretary Moniz would join us here in Rhode Island. Your presence, Mr. Secretary, speaks volumes in terms of your personal commitment to this process.

We are very fortunate as a nation to have someone as talented as Ernie Moniz, his academic preparation and leadership at MIT.

But for us here in Rhode Island, it's more important that he comes from Fall River. And so when we talk about --

SECRETARY MONIZ: Properly pronounced.

SENATOR REED: I know.

And so we talk about the challenges of heating a triple-decker with oil, he understands that. It's part of the DNA. So we're very lucky to have the Secretary.

I also want to recognize the Governor. Governor Chafee has taken a leadership position in making these issues central, not just to Rhode Island but to his colleagues in the gubernatorial caucus in New England.

They all came together, wrote a very strong letter about infrastructure limitations.

We -- on a parallel track, every senator, Democrat or Republican in New England, wrote a similar letter so that we could really begin to focus on a huge problem, which my colleagues have described.

We will have, during the course of this morning's discussion, representation by many leaders in our community.

I want to particularly recognize Marion Gold who is our commissioner.

Marion, thank you for your efforts.

And Margaret Curran, the chairperson of the Public Utilities Commission.

Bill McCourt will be here from the Rhode Island Manufacturers' Association and Dave Caldwell from the Rhode Island Builders Association.

This energy issue is central to our economy, to our economic growth and to our jobs. And if we don't get it right, we will not have the growth and

the jobs we need here. So your leadership and your presence is absolutely critical.

Also I want to recognize Scott DePasquale. Scott is with Utilidata, which is a very innovative company which is using all of these sophisticated computer algorithms to help manage the load. And I'm pleased to see that National Grid and Utilidata are partnering together.

This is the innovation that we have to encourage, not just more pipes in the ground, but how do we use computer technology, new approaches to make sure our energy is used more efficiently.

But I think both the Secretary and the Governor have really sort of put their finger on the problem.

Here is the irony of all ironies: At a time where all through this country people are saying we have an energy revolution, energy is cheap, we can do anything with energy; here in New England, we're seeing it prohibitively expensive.

It inhibits our manufacturing. It inhibits our job creation. It inhibits our attractiveness to bring companies in. And as the differentials become wider between other parts of the country, guess what? Our ability to grow, to attract business becomes even

much more difficult.

So we have to do a great deal to sort of ensure that we benefit from the American energy revolution, and that's what we're doing today.

The high cost of energy in this region is sad. And I had -- I think Jason Froman came by. Jason is a student economist. And we were talking about the problems. He said, you know, all I've been hearing about is this national energy revolution where prices are falling everywhere. I didn't realize there was regional variation.

Well, there are regional variations. We've seen our energy costs go up about 7 to 10 percent over the last year.

We've seen, for example, in terms of home heating and natural gas, about a $1,000 increase. That's a 47 percent greater increase than any place else in the country on average. So we're paying 50 percent more roughly, and that's natural gas.

When you go to electricity, it's about 20 percent more than the national average.

Then when you go to heating oil, it's $2,200 a year to heat a home, the average this year. I can attest to that, because I'm on the budget plan. But then when I got my extra bill this year for the first

time, it was like, wait a second, it must be a mistake. It wasn't a mistake. It was the cost of fuel coming in.

So we're seeing extraordinary increases in price. And we have to recognize this. And we also have to recognize, too, that we still get a double-whammy. Because of our requirements for EPA, we have to burn a lot of natural gas. I think 45 percent of our electricity in New England is natural gas.

Because we get a lot of the transmission effect from the Midwest; it goes up, it goes over and comes down. So guess what? Other parts of the country are the benefit of lower prices. They're able to pump their excess pollution into the air. It comes and hits us. So we get -- we get gifted twice, and we have to fix that.

So one of the areas, obviously, is the issue of natural gas and pipelines.

And again, another figure I think is so critical is in January, our spot prices for natural gas hit about $80 per MMBTU. Most other parts of the country, it was $6 per MMBTU. That's an extraordinary differential.

And again, we can't tolerate that. It will not allow us to grow. It will not allow us to recover

our jobs that we need.

So we are here. I think this is probably one of the most significant issues that we will face regionally in terms of economic growth and economic prosperity.

And that's, again, Mr. Secretary, why your presence here is so critically important, so we do appreciate it.

We have to work on pipeline capacity. But it's not just pipeline capacity. It's the expansion of renewable energy. It's demand reduction. It's mundane things like weatherization of buildings so that we don't use a lot of electricity. We can cut it down. It's a whole host of things that you will talk about.

But the whole point is really to give us a chance. If there is an energy revolution in the United States, we want to be part of it.

If the future of the United States is by sophisticated energy policies that lower the cost of energy, we want to be a part of it.

If the future is going to be about new technology, we want to be at the forefront of those new technologies.

With that, I thank you all, but

particularly, again, I thank the Secretary for his leadership.

Thank you.

MR. SCHEER: Thank you very much.

So we have some time for some questions.

What I would propose is that there's a standing mike in the middle of the room and we'll take them first come, first serve until we run out of time.

So it's a big opportunity to raise some questions.

Rob?

MR. THORNTON: Good morning, Secretary, Governor, Senator.

So we're here to talk about --

MR. SCHEER: Could you announce yourself.

MR. THORNTON: I'm sorry.

Rob Thornton, International District Energy Association.

So in this infrastructure investment, what about combined heat and power?

What about district energy?

What about more local resiliency?

Should we be looking at microgrids and strengthening the grid by harvesting heat rejected from power plants and use that in our cities,

communities, institutions? It works.

Is that something we should look for the QER to help with?

SECRETARY MONIZ: Yes, it's a good question.

Actually, before I address that, I want to address one little strange factoid to reinforce what Senator Reed said about this regional disparity.

Some years ago, we looked at the pay-back period for solar energy, and it was shorter in Connecticut than Arizona because the prices were so much higher.

You can kind of startle the -- it tells you what this means.

I'm sorry. So returning to your question.

So, first of all, I think microgids are a very, very strong focus in what we are doing and clearly will be part of this QER. So that, of course, leads you to extreme generation.

With regard to mining power, there still remains a tremendous capacity. Let's say institutional environments, shopping malls, et cetera, et cetera.

As we go to the smaller and smaller scale, let's say residential scale, micro-CHP, we know we still need a lot more cost reduction.

It is happening and penetration is growing. But clearly, that's some years away in terms of cost competitiveness, but it could be very important.

District heating, kind of return to the future, actually is something that I think is very interesting. And I think we'll be in a separate focus on that, see what we can do.

As you apparently know very well, in many other countries, this is being used extremely effectively, efficiently and economically.

GOVERNOR CHAFEE: Thank you.

Here in our region, as I said, we have to address this regionally.

New England, with our six states, each have different regulations, and so that's why it's so important for us all to get together, and not only in New England, but also in the provinces and New Jersey and New York and look at this regionally.

MR. SCHEER: Next question. Please announce yourself.

MR. GARRETT: I'm Gregg Garrett. I'm with ProsperityforRI.com.

I have a bunch of things, just from what you said.

First, I don't think Rhode Island's going to

get economic growth and it's probably a good thing for us to start to plan for a shrinking economy.

Given that with our 100-year-old infrastructure of industry, we should be just simply reducing our energy, not adding to it.

Almost -- if we look at the climate change issue and how much oil and gas is in the ground and if it comes out, what that's going to do to the climate?

We just -- it makes no sense to be taking that and increasing the amount of gas and oil we're drilling.

MR. SCHEER: And your question is?

MR. GARRETT: The question is, how do get real about climate and get real about understanding that Rhode Island needs to shrink, that the economy needs to shrink and our use of fossil fuels needs to shrink so much that we don't need a gas infrastructure increase and we need --

SECRETARY MONIZ: To answer the question --

MR. GARRETT: -- and we need to leave the oil in the ground because fracking not only destroys the water supply, it adds to the methane content.

MR. SCHEER: Thank you.

SENATOR REED: Let me just say, I mean, one of the points that I think we all agree upon is we

have to take a multi-faceted approach to this issue. It just can't be more production of energy and better distribution. It's got to be weatherization. It's got to be demand reduction. It's got to be looking at alternative energy like solar, light, wind, and we're doing that here in Rhode Island.

But I would suggest that we have to continue to grow. The question is do we grow based on the old technology and the old ways of more hydrocarbons? Or do we grow on new ways?

In fact, that growth can be tied directly to these alternate energies.

If with are constructing, for example, wind turbines at Quonset Point in Rhode Island for the deployment offshore, that's not only growth, but that's new energy technology that is much more environmentally sensitive than the old technologies.

So it's a combination of things.

And one final point, and it goes to this whole issue of -- I'm not the expert, but we've got enough here so they can fill in all of my gaps and knowledge.

One of our problems with our pipeline system is not only is it inadequate, but it's so old that we have a lot of methane leakage. So if we could replace

the pipelines, we could cut a lot of methane that is exhausted into the atmosphere as a pollutant.

So that it's a double-whammy.

Not only do you get a bigger throughput, more efficient use, more modern technology, you also cut down on one of the worst forms of pollution.

GOVERNOR CHAFEE: I would just add, Greg, as you know, this state was the birthplace of the industrial revolution and it all started with hydropower. It's almost back to the future with access to the reliable, clean hydropower from Quebec and Labrador.

We have the opportunity to really be the green energy capital of North America if we work together.

And as I said, at one time this economy in this area was world-renowned. And that's what we want to get back to.

So I dispute the premise that we want to see the economy shrink. We want good jobs for our people in this region.

SECRETARY MONIZ: I would just add that certainly, our policies are geared towards continued economic growth, but as it's already been said, and I won't repeat a lot of it, with cleaner energy and very

importantly with demand-side management, so energy efficiency.

There is no -- there is no solution, in my view, to meeting economic environment goals together without an enormous contribution on the demand side, and part of that's technology.

The LED revolution that we're seeing, part of it is programs, and as the Senator said, weatherization programs.

We have a ways to go.

This state, by the way, is already a leader in energy efficiency, but the more we do there, the better it is.

I will have to address one other question, however.

The President and the administration, myself personally, we are committed to what's called the all-of-the-above approach, even as we address climate change.

Let me just mention one part of that specifically.

We have set a goal of a 17 percent reduction of greenhouse gases by 2020.

Relative to 2005, we are approximately halfway there, and approximately half of that comes

from the natural gas revolution and the substitution that we have seen for coal in power generation.

Now, eventually as we squeeze down more and more on CO2 emissions, then natural gas will become carbon intensive as well and it will need carbon capture if it's to go forward in that very low carbon economy.

But let's make no mistake about it. When it is talked about as a bridge, it is acting that way and it has been a driver of our CO2 reductions.

But the last thing I'll say, and Senator Reed mentioned methane emissions, that non-CO2 remains the number one driver right now in terms of our greenhouse gas emissions, and it is the most persistent in the atmosphere. So it remains the highest priority to address.

But we should not forget the important contributions and opportunities from non-CO2 greenhouse gases, methane, where things like replacing the old urban gas distribution systems could have an enormous impact and economic growth at the same time.

The reliance between environmental groups and labor, for example, is advocating that.

Hydrofluorocarbons, that's another.

These are probably the two major

opportunities in the near term to get our greenhouse equivalency down.

So we have to look across the board. And if we do not continue economic growth, it will be very difficult to sustain broadly in our society and a support for continuing our fight against climate change risk.

MR. SCHEER: Next, please.

Announce yourself.

MR. HANDY: Hi. Art Handy. I'm with the state representative here in Rhode Island. And I also work for the American Lung Association of the Northeast. So the second hat is the one I think I wanted to put a question out there on, which is around, I guess what Senator Reed was talking about, the conveyance of a lot of the pollutants we're seeing, that they're contributing to our ozone issues here in the Northeast.

As Senator Reed said, we kind of get the worst of both, or however you want to look at it, if you look at Governor Chafee's caucus of gubernatorial, and then Eastern Canadian is even worse because they get of our tail pipe as well.

But I was really pleased to hear, Secretary, you say that part of this effort is to look at

collaboration and cooperation between them.

I'm wondering where you see those kinds of things happening.

And if I could throw one more in, I agree, I think that potentially natural gas has that potential to be a bridge, but if it's a bridge, it still needs an endpoint and I'm wondering what you guys are doing in terms of looking at that endpoint and rather than -- I think there's a lot happening, but it doesn't necessarily feel like there's a grand plan to help us see where we're going to get off of that as well, whether it be 20, 50, however many years down the road.

MR. SCHEER: Thank you.

That's going to be the last question.

SECRETARY MONIZ: I would suggest that there is a plan.

And certainly, key -- you're absolutely right. Of course, if you have to have a bridge, you have to have a landing point.

We like to make the span of the bridge as small as it can be, of course, not space, but time.

Anyway, the -- but the key is that we have a very, very robust technology development program for clean technology.

It's across the innovation chain, research, development, innovation and deployment. And I would be happy to spend another hour to describe some of those.

The key is cost reduction. So we are driving innovation with the objective of cost reduction of low-carbon solutions.

The lower the cost of those solutions, frankly, the easier it is for the policymakers to put in stringent restraints, the type that we would need in the long term.

So in fact, what we have -- what we say is in this bridge context, if you like, the natural gas revolution, the impacts we are already seeing from, let's say vehicle efficiency standards, which are also contributing to the lower reductions, the developments we are seeing in terms of alternative fuels, et cetera.

They are -- one way to look at it is they are giving us some time to reduce the emissions in near term, but time we better not fitter away in developing the low-cost, long-term solutions. And that's, again, across the board: efficiency, renewables, solar, wind, but also the sometimes-forgotten renewables, geothermal, hydro, you name it.

Nuclear power. Looking at potentially smaller modular reactors for the 2025 time frame and looking at things like carbon capture on a large scale to enable some fossil fuel combustion even in a low carbon economy.

So that really is the agenda. We have to push efficiency now.

The gas substitution for coal is having major impacts. And we've got to innovate to bring in those technologies in a timely way.

I'll just add one last point to the last point, that innovation is critical for meeting our low carbon challenge, for meeting our energy security challenge and for having our economy grow in an economically restrained environment. But it really is also important for our place in the global economy.

The clean energy markets are forming in front of our eyes internationally. And we want to be at the head of that train, not at the caboose. So we are investing very heavily.

To give you a scale, Ceres, a well-known clean energy investment group, has estimated that over the next 40 years, the clean energy infrastructure prize, if you like, or need, is roughly a trillion dollars a year globally. That's the market we want to

be a big part of.

By the way, that number may sound exaggerated. It's not. That corresponds to about a half percent of GEP over that time period.

Those investments are going to be made. We want them to be made running on clean energy future and we want to be a huge part of the providers of that future.

MR. SCHEER: Thank you very much for the panel.

I'd just like to remind everybody that there will be an opportunity for public comments at the end. So if you have something else you want to say, you can sign up to do that.

And there is an e-mail address, QERcomments@HQ.DOE.gov, where you can send in your remarks.

So to segue into the next phase of this event, what I'd like to do is call to the podium here the first panel.

Our first panel has to do with infrastructure needs for heat and power.

And this would Anthony Buxton, Kevin Hennessy, Joe Rose, Michael Trunzo and Andy Ronald.

Please come up.

Names tags are coming out and you can see where you sit.

(Pause In Proceedings)

MR. SCHEER: We made that segue fairly smoothly, I would say.

So I think we've got a very good start to our event here today.

We have a good framework going as to what the challenge is and what the opportunities are here in New England with respect to energy infrastructure, and now we are lucky to have five practitioners in that area who have agreed to offer their perspectives on this topic.

And so first off is Anthony Buxton. He's the general counsel with the Industrial Energy Consumer Group.

Anthony, you get to kick this off.

MR. BUXTON: Thank you very much.

Good morning, everyone.

I want to thank the organizers, Melanie and your terrific staff, for allowing the Industrial Energy Consumer Group to be represented here today. We don't get invited to many meetings.

And I also -- I want to show you why. We tend to speak in hyperbole and it's because we're

afraid.

And the speakers this morning, who were superb in outlining the issues that we see as -- highlighted some of the facts that we want you to know. And they highlighted the challenge and the problems.

What I want to tell you is a few little vignettes.

On one Friday this winter, the citizens of New England and businesses spent over $100 million more for natural gas and electricity than they should have if they lived in, for example, New York or Pennsylvania.

A million BTUs of natural gas coming out of Marcellus Shale on that day sold for $2.86. That's the equivalent of oil, No. 2 heating oil at 40 cents a gallon, which is a fantasy for most of us.

And when that gas got to New England, it cost $32.88 solely because of the so-called basis differential in premium because of the shortage of pipeline capacity.

Now, these are abstract numbers. They are about stuff.

My clients closed one of their mills with 800 people off and on for two consecutive months

throughout most of the two months.

Another plant which makes Chinette paper plates did so, and it makes it out of 100 percent recycled fiber, with most renewable energy. They were forced to shut down because of the cost of electricity on a shift-by-shift basis.

The Gorham paper mill shut down on a regular basis in New Hampshire.

This is a real cost. Those families weren't paid or paid as much and they suffered tremendously. And this is the human face of the shortage of the natural gas pipeline capacity.

The challenge here is to find a solution, and that's part of what our panel will talk about today, I'm sure.

Everyone -- virtually everyone, not everyone, but virtually everyone agrees we need more natural gas pipeline capacity.

I left a study out front for you to take a copy of showing that what we need is 2 BCF per day, more natural gas pipeline capacity than we currently have.

We commend the governors for recommending one BCF. The study was done to show that that would be very helpful, but not helpful enough.

We think the governors are now moving to a bit of a higher number, and that's a step in the right direction.

Now the question is the critical one and I'll close with this: We have a human tendency to recognize problems and not to see the solutions through to the end. It is a tragedy.

One of those, obviously, is climate change.

As the Secretary said, quite wisely, we have a limited amount of time, but every day or year we waste is a day or a year we don't get back. It takes away our latitude to try new technologies and to be successful.

It is also true, and this is the hyperbole that I engage in sometimes, and this is true: There has not been a famine in recent human history where the problem was a shortage of food. It has been an unwillingness of humans to give the food to the people who are starving.

We have a tendency to identify the problem and think that's enough.

It's not enough. The paradox that we're talking about is the lowest cost supply of natural gas on the planet in the Marcellus Shale, 250 miles from here, and not having the human will to get it here.

We have to overcome that. And I look forward to working with all of you in that solution.

Thank you.

MR. SCHEER: Thank you, Tony.

So if you can hold your applause until the end of the panel, it will just expedite things a little bit.

Next we're going to hear from Kevin Hennessy, the director of federal, state and local affairs for New England Dominion Resources.

I'd just like to remind everybody, all of the panelists, if you prefer to sit in your seat, that's fine, too. You don't have to use the podium.

MR. HENNESSY: Thank you.

Good morning, everyone.

I would like to thank Secretary Moniz and the Quadrennial Energy Review task force for inviting me to participate today, my distinguished panelists and guests here.

It's a critical issue.

My name's Kevin Hennessy. I'm the director of the federal, state and local affairs for Dominion in New England.

And most folks in this region hear Dominion and they think, well, what do we do in New England.

We own Millstone nuclear power plant, Manchester Street power station, but we are a larger entity.

What I always tell my family and friends that don't know what I do and I'm trying to explain my day-to-day job, who I work for, is we're an energy company. We're not just a utility; we're an energy company. And essentially, we have our fingers in every facet of the business.

So when Secretary Moniz was talking about an all-of-the-above policy that we need to pursue as a country, that's what Dominion is doing in practice right now.

I'm proud to say our leadership internally has been touting that for quite a while. And I'll be able to talk about some of the initiatives we're doing here in New England.

The two take-homes that I want to comment on today are fuel diversity and collaboration.

Obviously, everyone's aware of the infrastructure constraints we have right now. They need to be addressed. We're taking steps to start to address that problem. The issues's been pointed out and now it's time for solutions.

But in the interim, before we get to those solutions, fuel diversity is critical, as is

collaboration. Because as you'll see, energy touches -- here in the room, we've got federal interests. We've got regional interests. We have state interests. And we have local interests. And it's hard to kind of mesh all four of those together and come to the right solution.

A quick overview: Dominion, we are a utility in Virginia. We are the main Virginian power with 2.5 million customers in Virginia and North Carolina and the midwest Ohio, West Virginia, Pennsylvania, New York, some of that Marcellus Shales fields.

We are an energy company that has almost 11,000 miles of natural gas pipeline; a local distribution company in Ohio, West Virginia with 4.2 million gas customers.

And then Dominion Generation has about 23.5 gigawatts or 23,000 megawatts of power. Almost 4,000 of that is merchant up here, focused heavily in New England. That's the Millstone, Manchester Street.

The other assets that we have here in New England that are growing are some renewables.

And near by in Connecticut, in the last year, we've invested in a fuel cell facility, which is in Bridgeport, Connecticut, which is an urban center,

its largest city in Connecticut.

And on a two-acre facility in downtown Bridgeport, a former Brownfield site, we erected with our partner, Fuel Cell Energy, a 15-megawatt power plant. It's essentially a microgrid. It's connected to the distribution system at three interconnection points, and the power is going to a local utility company. And it's the largest fuel cell installation in North America. That's something that we're excited about.

We're excited about the technology. It's a base-load power plant. It doesn't run intermittently. It runs north of 90 percent of the time. And it's something that we're looking to as critical infrastructure.

We also opened up a 5-megawatt solar facility in Connecticut at the same time, both the end of last year.

So we're growing.

The story here that I think is important to know on fuel diversity is our Manchester Street station, which is the gas plant right along the highway here in Providence, that's a natural gas facility.

But in 2010, we invested in our facility and

upgraded our fuel oil ability. So now we've recommissioned our ability to be dual fuel.

And the reason it's critical is what happened this winter.

In the first quarter of this year, the plant ran 45 percent of the time on fuel oil. That's a phenomenal number, from a reliability standpoint, from an economic standpoint, because for most of this time this first quarter, fuel oil was about one-third cheaper than natural gas on an MMBTU basis.

So it helped customers. It helped the ISO New England grid remain liable and helped us to operate and run.

The other critical fuel diversity factor is our plant, Millstone, the nuclear power plant that I touched upon. That's down in Connecticut about an hour down 95.

That ran for the first quarter of this year at a 99.5 percent capacity factor. So it essentially ran nonstop, round the clock.

Now, I highlight that from a collaboration standpoint because in order for us to succeed from an economic, environmental standpoint and reliability standpoint, we all need to be pursuing the same end goal.

And not to be an alarmist, but there are various interest groups at every level. They all have different charges.

And one thing that I want to highlight is that you need to keep your eye on the bigger picture, and this is by no means a critique, but there's a cooling order coming out, expected next month by EPA.

Let's just take the worst-case scenario. Let's say they go as far afield as they can and demand closed-loop cooling systems.

What does that do to a region like New England, where you have three nuclear power plants along the coast? You've got Seabrook id New Hampshire. You've got Pilgrim in Massachusetts and Millstone in Connecticut.

That's 4,000 megawatts of power that we rely on as a region, that we rely on for environmental benefits. So it's critical that we work together and make sure we focus on those goals.

I'm happy to talk about these issues during the Q and A.

MR. SCHEER: Thank you, Kevin. I appreciate that very much.

Next we have Joe Rose, who's the president of the Propane Gas Association.

Joe, the floor is yours.

MR. ROSE: I'd like to thank the Secretary and his dedicated team at DOE. I've gotten lots of late-night phone calls and e-mails, so they're working hard.

So you're probably saying, what is propane? Well, that's the stuff I cook with in my backyard barbecue.

Well, propane is the natural gas that goes beyond the means. And here in New England, we have the Granite City. It's not especially conducive to expanding natural gas mains, nor are lots of areas in rural New Hampshire, Maine even Vermont.

It's amazing to me how much propane exists inside the 495 beltway in Boston.

So where natural gas can't go or it's too expensive to go, propane is the solution.

Propane comes out of same pipe in the ground as the natural gas. So it's an American fuel.

This past winter brought tremendous challenges to the propane industry, as it did to every other form of energy in New England. We recognized early on that we were going to have some problems.

Crop demand in the Midwest, farmers used propane to dry their corn. Well, the corn crop was

huge and came in late. And the demand for propane this past winter was five times what it was last year. So that eats up supply.

We had colder than normal weather. We talked about the polar vortex this morning. We all know what impact that had on us personally. It had tremendous impact on our propane supply.

So we recognized early on that we were going to have a problem.

We have a tremendous asset here in New England that other regions of the country don't have.

We have two import terminals that can bring propane from other countries in by ship in large quantities. One of them is right down on the harbor here in Providence. The other one is in Wilmington, New Hampshire.

So we got together and we ordered propane back in November and December that was unplanned.

This graph just gives a little bit of an illustration of the surplus of demand in the United States from October to March, which was 750 -- I mean, 570 million gallons higher than normal.

So we brought propane into these two import terminals, 87 million gallons of one plant supply for the New England market, which is about 15 percent of

the normal annual demand. Otherwise, we would have been hearing here in New England, like they were in the Midwest, about customers who were having to go without.

I'm happy to say that no New England customer went without propane this winter.

So our national organization, Natural Propane Gas Association, has formed the task force to study the circumstances and to try to come up with solutions, because as several of the other panelists have said, solutions is what it's all about.

So I want to focus on a couple of the impacts here in the Northeast.

First of all, we sell 7 percent of nation's propane, but we only have 1 percent of the storage. And New England happens to be the only region of the country where propane sales are growing. And we're growing at about 8 percent annually.

There's a combination of converting some homes that are heated with fuel oil now and the evolution of our auto gas business where propane is becoming more and more popular as an automotive fuel.

So why don't we have more storage? Andy Robbins is going to be speaking about a big project in New York that would help with more detail in a minute.

But the real issue with storage is the fact that we're having trouble getting permits. The propane companies and the industry as a whole pay for their own projects. No government money. But we do need help to get permits.

And while we all want to be able to turn on the light switch and turn off the thermostat and have all the energy that we want, a lot of us have a real hard time with storage projects in our communities. So that's a real concern.

One of the issues -- and the reason I mentioned we have these import terminals, they've been pretty much in mothballs for the last two years because of economics.

Propane in the rest of the world is about 80 cents to the dollar a gallon higher than it is here in the United States. So there's been a huge reluctance to bring propane in because nobody wants to charge customers more money.

And so rail's become the predominant transportation mode for New England propane. And you may see railcars like this going through Rhode Island.

We've been working hard to try to permit more rail facilities, more reliable rail.

I knew I couldn't do this in five minutes,

so I'll wrap up.

MR. SCHEER: You were right.

MR. ROSE: Here's one of the examples: this winter when rail became a problem, we talked about the vortex and Mother Nature.

Again, just to wrap up, the third way we bring propane into the region is by pipe. It's an 8-inch pipe. It comes from Texas, ends outside of Albany, New York.

So lots of transportation in New England; lots of issues.

To recap, even though our production in the United States is at record levels of propane, we still have infrastructure and supply issues. And the biggest and most critical need that we have in New England is for more supply that we can fill, storage that we can fill in the summer, even out the curve on the infrastructure and be able to continue to keep New England consumers safe and warm.

So thank you.

MR. SCHEER: Thank you very much, Joe.

Hold the applause to the end. That was a great talk, it was.

Next we're going to hear from Michael Trunzo, President and CEO of New England Fuel

Institute.

Michael, the floor is yours.

MR. TRUNZO: Thank you. Good morning.

Mr. Secretary and distinguished guests, thank you for the opportunity to represent the home heating oil industry here today.

The New England Fuel Institute members serve more than 2 million homes in New England, and they directly support more than 14,000 jobs in the region.

Let me begin by saying that today's home heating oil is much different than even what your father used. And it's an important part of the energy mix in this region. Today it's increasingly abundant. It's clean. It's efficient. And yes, it's even renewable.

So our policy choices and investments and decisions will make the United States truly energy independent. And the home heating industry is well positioned to be part of the solution.

There are opportunities for the administration to assist New England in addressing its energy future.

They include support for the implementation of a consistent sulfur specification for diesel and home heating oil, to maximize refinery capacity, fuel

supply and regional storage infrastructure, enhancing and incentivizing national and regional biodiesel production and promoting a more efficient transportation of crude oil to East Coast refineries via rail, pipeline and more Jones Act eligible vessels.

To support these initiatives, our industry has a downstream fuel distribution network that is fully operable and is already delivering the newest generation of clean, efficient and renewable heating oil to millions of homes in the region that has developed without the support of taxpayer money and none is needed to maintain it.

The sulfur content in heating oil in most of the region would dramatically reduce in July of this year to 500 parts per million and again in July 2018 to 15 parts per million. Thus, heating oil will become the same product as diesel fuel.

Why is this important? Because it provides for better air quality, consumer savings and increased regional storage infrastructure, as eventually we'll be dealing with one fuel for multiple purposes.

America's fuel dealers and our biodiesel production partners are reinventing the home heating industry. And it's really part of the great American

energy success story.

By increasing biodiesel blends with ultimately low-sulfur heating oil or diesel, we produce a fuel that is renewable and at certain funding levels is environmentally cleaner than natural gas.

We achieve these gains because NSTM diesel has no carbon footprint. They're being -- it's being blended right now up to 5 percent and the industry will be applying for up to a 20 percent specification for fuel in the upcoming months.

We find terms of the administration to explore ways to increase production. This includes the support of the retroactive renewal of the recently expired one-dollar-per-gallon biodiesel tax credit and keeping the volumetric requirement for biodiesel production in EPA renewable fuel standard on parody with current and future production levels.

As we continue to transition to a sustainable supply, the region also needs to strengthen this petroleum transportation infrastructure.

As I said, this includes transportation by rail, pipeline and ocean-going vessel.

As you may know, the Jones Act restricts

U.S. port-to-port deliveries to vessels that are American made, flagged and crude. This limits the number of vessels eligible to deliver product into New England, and this must change. We need more ships.

With regard to pipelines, there has been discussion about reversing the flow of the Portland/Montreal pipeline to allow transportation of Canadian oil into Maine, South Portland marine terminal facilities. This will help bring crude oil to the East Coast refineries and the urban oil refinery in New Brunswick, Canada.

As mentioned earlier, the region has also seen a public policy movement to expand access to natural gas using state and taxpayer funds.

The recent winter provided a perfect example of the stresses caused by simultaneous demands for industry, electrical generators and space heating needs.

Large-scale energy users, including power generators, had to return to the more reliable energy source, heating oil. This reinforces the fact the heating oil industry has a proven track record of bridging the gap without costly public investment.

What is needed to fix this is not extensive pipeline expansion, but rather adequate planning by

utilities and their customers to eliminate and reduce dramatic shifts in demands which cause price spikes.

Our members do this every day through the quantities market.

Policy makers must also consider much of the natural gas infrastructure is aging and obsolete and is prone to leaks. We have -- we believe it should be fixed, not necessarily replaced.

In conclusion, we appreciate the Secretary's comments that the all-of-the-above energy strategies does include all fuels, and we look forward to working with you in the future.

Thank you.

MR. SCHEER: Thank you very much, Michael.

And our last speaker, before we get into our round-table conversation here, is Andy Ronald. He's the vice president of commercial development and national accounts with Crestwood.

The mic is yours.

MR. RONALD: Thank you very much, Secretary, and the rest of the group of the Department of Energy, for giving us an opportunity to be here today.

Briefly, my responsibilities are to seek and develop assets that bring value to both the producer as well as the consumer for the movement of natural

gas. Mostly propane is my specific area of expertise.

I've been in the industry for 44 years. I've been in the NGL business for 28 years.

What I'd like to do today is to take you through a quick slide deck, and I don't know whether I can speak as fast as Senator Reed, but I will try.

A brief introduction to our company.

Next slide.

Our company is basically categorized by performing two functions: We gather energy, particularly natural gas. We process it. We take the liquids out of it. We gather it from exploration wells that the producer drills. We process it. And we return cash to the producer.

We operate all the major areas in the United States with gathering and processing systems.

You can see here a quick run-down of our asset summary. We handle 1.3 BCF natural gas transmission capacity daily. We have 2.1 BCF gathering capacity, 1,260 miles of pipe and 80 BCF of natural gas storage capacity, four of which are located here in New England.

We have eight natural gas processing plants with 600 MCF processing capacity daily. 125,000 barrels per day of crude oil gathering systems. We

operate NGL and crude and logistics businesses with trucks, railcars and other assets.

These are our customers -- this is an example of our customer deck. We provide producers and refining customers. We take away achieving flow assurance and optimal net back for their product value.

We offer hedging activities in the major hubs, liquidity in price discovery.

We're well positioned to manage local supply dislocations.

We have a supply facility, a storage facility located in Bath, New York. And we handle about 118,000 barrels a day of natural gas liquids.

The facilities -- the Bath facility, the Seymour terminal and the South Jersey terminal are all facilities that we operate daily.

The project that we're talking about developing that we've been in permitting for almost five years is 2.1 million barrels of underground NGL storage in Watkins Glen, New York. It will connect -- it is connected to the Teppco pipeline, which allows us to bring product in from Marcellus in Utica production and take it out further to Selkirk (phonetic) by pipeline.

It will have rail. It will have receipt capability to rail and truck. And we've been avoiding regulatory approval for five years.

This right here is a quick example.

And in summary, what it says is, markets where there's an abundance of product, the price is low. Markets where their product supply and demand are balanced, the price is in equilibrium. And in markets where demand exceeds supply, the price is very high.

That's what everybody has referenced here recently in the periods that we've recently been approved.

The chart on the upper right shows you what is going to happen in Marcellus and Utica Shale with energy in the United States.

It -- by 2023, we'll have 700,000 barrels of gas liquids produced in that area coming out in natural gas. Of that 700,000, about 300,000 is ethane, leaving about 400,000 barrels a day of propane and butane, equally split about 50-50 of each one, giving about 200,000 barrels a day of propane in this region.

Our job is to figure out ways to get that and keep that in this market.

You can see on the right, the bottom line is -- top line is -- the blue is production.

The middle black line is the capacity.

The Teppco pipeline annualized at 65,000 barrels a day.

When you stop and think of 200,000 barrels a day of propane production up here, it has no place to go. It has no infrastructure to hold it. It has to be exported.

I'm going to wrap up real quickly.

These -- I had a lot of slides here about pricing.

But in essence, product is going to flow to the demand. And in this case, there's no way to store it.

We have a storage facility proposed in Watkins Glen, New York for 2.1 million barrels. It's a $40 million facility that we're prepared to build with private funds. It's connected to the Teppco pipeline.

We've been in a very challenging regulatory market for four years. It's completed a strategic risk analysis. The outcomes were extremely favorable and satisfied all engineering and subsurface requirements. It's ready to go. And we would do our

best to bring it on as quickly as possible.

Just in conclusion, growing Shale production in Marcellus and Utica provide a significant amount of propane for this region, if we could figure out ways to use it. The seasonality of propane requires storage up here, because it's here.

We're producing it. All we need to do is store it. So it's ready for your demand.

Last winter we imported 2. -- roughly 2 million barrels of propane. As Joe said, that would have been unnecessary with our facility.

Thank you very much.

And if there are any questions, I'd be glad to answer them.

MR. SCHEER: Thank you very much, Andy. We appreciate that very much.

To remind the audience here that the slides that speakers show, they will be available on the www.Energy.gov/QER web site in a couple of days.

So thank you for your opening remarks. Much appreciated.

So now we're going to have a little bit of a conversation.

I've got some questions I'm going to pose. And the way to get us started is we'll just go down

the row here and get your responses to them.

Some of you may have provided answers to this already in your remarks, but we can give you an opportunity to refine them and hone them down, make them as hard-hitting as you can.

So the first thing I'd like to put on the table for you is: What are your specific recommendations regarding appropriate federal roles, in particular, and hoping to address these energy infrastructure constraints for heating power, including possibilities that you might have for executive, legislative, regulatory or administrative actions?

So what suggestions do you have?

And Tony, we'll start off with you.

MR. BUXTON: Thank you very much.

Specific to the natural gas pipeline efficiency or deficit, the governors, as everyone here knows, in New England have gathered together, joined together, and through Nesco have sent a letter to ISO New England asking ISO to develop a tariff that would be filed with FERC and hopefully approved by FERC.

That would make up for, that would compensate for the absence in New England of any creditworthy energy that can sign up the kind of

contract as FERC requires for pipeline contracts and allow pipeline expansions or greenfield construction to begin.

The challenge here is aggregating consumers and their credit through governmental processes.

And there are, obviously, people who oppose this, who oppose natural gas. So there will be a fight at FERC.

So specifically, I would ask, Secretary, since there's no case pending presently, to do whatever he can with the administration to make sure that FERC takes the steps that have to be taken of approving the ISO tariff.

The only other option available -- there are two other options available.

The first is, we can eliminate competition among generators and reregulate generators in New England.

I'm not sure there are a lot of people who want to do that. That would be a big step backwards away from competition.

The second choice would be for each of the six states to do what Maine has done and authorize their state to enter into 200, 400 million cubic feet of capacity or whatever it would take to meet their

need.

That is a study in the failures of federalism and, frankly, over time probably won't work.

So we don't have much of a choice. We need to focus on, as I said in my initial remarks, getting people to do what obviously has to be done.

MR. SCHEER: Thank you, Tony.

Kevin, specific suggestions, recommendations for federal executive action, legislative, regulatory, administrative?

MR. HENNESSY: I don't have a specific recommendation other than what I kind of closed on in my prepared comments where I think it's critical, and I think today is one of the first steps of that, is having all the entities engage: federal, regional, New England, NESCO involved, states, Hartford this afternoon and here in Providence.

And I think having DOE talk with FERC, as Anthony mentioned, having EPA involved in the conversation, I think that's -- the critical infrastructure is stepping back trying to realize that there are goals we need to address, not only here in New England but throughout the country, and not all of the goals are aligned.

So we need to try to prioritize. And that, I think, is the critical first step for the federal government.

MR. SCHEER: Thank you, Kevin.

Joe, do you have some specific recommendations you would like to provide?

MR. ROSE: I do.

For our industry this season, we had this perfect storm of a huge crop of corn which depleted inventory, then also the extreme cold.

One of the things that the propane industry would like to see is increased visibility from EIA on inventories and exports so that we could have real-time data that would allow the user to build a forecasting model based on certain consumption assumptions.

And then as I mentioned, we in New England brought propane in from overseas to avoid a crisis even though it drove up prices.

If we had more increased visibility and availability of real-time data from EIA, we would be able to build forecasting models in lieu of having additional storage.

So the two things that I guess I would ask is that we work with the EIA on the increased

visibility of the data. And then if there's anything we can do to regulate or encourage the approval of some of this storage permitting, it would really take the edge off and provide a tremendous amount of stability, not only in the availability of the product but also in the price.

MR. SCHEER: Thank you very much, Joe.

Michael, specific recommendations?

MR. TRUNZO: Thank you.

I pretty much outlined them in my testimony.

But in Connecticut, Rhode Island, Vermont and Massachusetts, those states are all moving to lower sulfur fuel in July of 2014, and again, 15 parts per million.

And I think the region will see a change in distribution. And we're hoping that given that New York, Connecticut, New Jersey are already moving to those same specs, that the infrastructure will move to 15 BPM quicker than the statutory rules allow.

So we would like to see the administration support whatever move we can to have a regional fuel to that lower spec.

As I said, the biodiesel production is very big for our industry. We use biodiesel as a blending agent to truly make heating oil a very, very clean

fuel. It has a number of uses across the spectrum. And it will be a truly important part of our future and the region's future.

As pipeline expansion is discussed, I don't believe that they can reach everyone in those 2.3 million homes that we serve. The majority of them will continue to stay on heating oil.

Lastly, dealing with the Jones Act is probably one of the bigger issues we have, trying to figure out how to get Gulf Coast oil crude up to New England refineries. That's a big issue for us.

The last thing I mentioned was the ASTM standards for biofuels.

In June, I believe the power industry will be going before ASTM to move to a B20, which is heating oil blended with 20 percent biodiesel. As the heating oil spec right now, it's MB5. We'd like the administration's support for that because we work hand-in-hand with Brookhaven National Lab and their tests have truly found that blending to B20 and even to B100 have greater efficiencies for appliances and to home energy systems and they reduce maintenance and cost to the consumer and the biodiesel is less expensive than traditional fuel oil.

MR. SCHEER: Thank you, Michael.

Any specific things you would like to suggest?

MR. RONALD: I think that the United States is in the middle, as several people pointed out, of a tremendous energy revolution or evolution, if you will. I think it's early in the stages of this.

I think what we have to step back and take a look at is, in New England it's not a shortage of product. We have plenty of product. It's getting -- and I've heard this time and time again, it's getting that product to the consumer in an efficient manner.

It takes pipeline expansion and rejuvenation for natural gas. And it takes increased storage capacity to keep this energy that's produced in the United States here in New England where it's needed when it's needed.

Otherwise, there's no alternative if this product is going to be exported offshore. And it's -- it will be the American consumer, and it will be the Northeast consumer that pays the bill for that.

We have a shelf-ready project to that effect in Watkins Glen, New York. It's permitted. It's ecologically sound. It's -- the subsurface structure has been approved. It's safe. We operate them all over the United States.

We'd like to recommend in any way that in everybody's support that we seek to get that project approved as quickly as possible.

MR. SCHEER: Thank you very much, Andy.

That's a good segue into my next question for you all.

Because we -- the constant theme, as you just pointed out, is the need. It's not a fuel supply issue. It's a transport and delivery and storage issue. And that involves capital investment for new pipelines, new storage facilities, et cetera.

So what I'd like to have you all comment on is -- the following question is kind of a two-part question having to do with your suggestions for either financial, market or other kinds of incentives to stimulate investment in these kinds of new capital assets.

But before you talk about your ideas for what to do about it, maybe you could also comment on what are the main barriers that are standing in the way from the project, like Andy just explained in Watkins Glen, but others as well.

What's holding these projects back and what sort of incentives might be needed before --

Okay. Well, let's -- thank you. The

Secretary, he has to go off to Hartford.

MR. MONIZ: I apologize. But thank you very much.

MR. SCHEER: We won't miss a beat. We'll keep going here. Thank you.

And so getting back to the question, everybody kind of catches the drift of it. We've got this capital investment in pipelines and storage facilities.

What are the opportunities, investment opportunities?

What are the barriers to them?

What sort of incentives, market financial and otherwise, would you recommend to the QER people who are still here listening to you?

Tony, you can go first.

MR. BUXTON: I think we just saw the answer as the Secretary left. The Secretary has to get from here to Hartford, and apparently it's not easy, and so he has a State Trooper to get him there.

I think what we need for our projects is a State Trooper.

But not being facetious, but I think that we have the mechanisms in many instances, particularly in the natural gas pipeline area to make decisions and to

implement decisions.

We need people to make the decisions and to not let things get further bogged down when there is a virtual consensus on what needs to be done.

That's easily said, I know, and hard to do. But it's there. And it's just a matter of deciding to do it.

We do have a problem with inconsistency with regulatory paradigms.

I think I've heard several examples of that from this panel.

MR. SCHEER: You mean among federal, state, local jurisdictions?

MR. BUXTON: Yes. And even within the federal government.

Let's just take, for example, the one that's been referred to about air quality.

We've taken a huge step backwards. We've made great strides -- we've made tremendous strides in the industry without necessarily any requirement to do so based on the availability of fuels, and yet this winter we had many days when we burned more coal and oil than gas.

Stated the other way, if we were able to switch people off heating oil in their homes and

businesses in New England, we could save 17 billion tons of CO2 per year. I calculated that. It may be wrong. It may be 15 or 18.

But that's an incredible change in our profile that would be very beneficial for health and lung associations here. It would reduce asthma, reduce costs. There's virtually no negative to this. However we get it done, it's really just a matter of deciding that we're going to do it and creating the political consensus to make it happen.

There are some needs. And I'll be quick with this -- there's a lot of work being done or attempting to be done on transparency, not just for propane but also for natural gas and trading systems so we know where what is.

Those things would be affected by a federal solution that's going to be, I think, years in coming.

Unfortunately, we need to solve the immediate problem before we solve that problem.

MR. SCHEER: Thank you, sir.

Kevin.

MR. HENNESSY: As far as barriers go, I think everyone's heard about NIMBYism and perhaps people have heard about

BANANA. But I think that's the issue we

have in New England where it's: Build Absolutely Nothing Anywhere Near Anyone. We need to get rid of that mentality.

The example I like to use is, we used to own a facility on the North Shore of Massachusetts, Salem Harbor. It was a coal-fired generating plant. We sold it to a company whose business model is to deconstruct that plant, to build a new gas plant on its site. They have the support of the community. They have the support of elected officials. They have all the infrastructure in place.

Yet they've been bogged down in litigation to try to move forward. They're still not locked into financing.

If we as a region can't build a power plant there, I don't know where we're going to build anything.

That flows over on the pipeline side.

So as far as barriers, I think there are proposals right now from the pipeline company to increase capacity on existing pipelines. There's even new pipelines that have been quoted.

So those are market -- the market signals are out there and you've got folks responding to them.

I think the government's best role is to

come in and to help be that State Trooper to clear the path to make sure that the market solutions don't get blocked.

So that's the recommendation with regard to that.

MR. BUXTON: That's two for Troopers.

MR. SCHEER: So, Joe, do you have some thoughts here on what the barriers to this investment would be and what we can -- what the government can do to unleash market forces?

MR. ROSE: Obviously, the BANANA and the NIMBYism is important to our industry as well. But I think one of the longer-term solutions that the government can have a tremendous impact on would be to overhaul the tax system so that businesses would have long-term planning ability, because they would know long term what the tax implications of this capital investment would be.

And I use the example of the alternative fuel tax credits, which several people in this room have worked very hard to try to promote alternative fuels to protect our environment and stimulate our economy.

And yet every year we get a one-year extension on a tax credit or no extension or it

lapses, then ten months later it comes back. And businesses can't plan. They need -- businesses need to understand, these are the rules, this is what I can be looking forward to for the next four or five years so I can decide to make these investments.

MR. SCHEER: Thank you, sir. Michael.

MR. TRUNZO: I would talk about two issues, maybe one, as I mentioned the investment and to incentivize increased biodiesel production in this country.

And I think related to Anthony's point, while we don't want -- we wouldn't want to see a lot of people off heating oil, if that's what they choose.

As we continue to blend biodiesel at higher levels, that becomes a much cleaner fuel. And actually, the Northeast States Coordinated Air Management Group, NESCAUM, found both in their report that blending low-sulfur fuel with biodiesel further reduces SOx, nitrogen oxide, particulate matter and mercury emissions, and that a 20 percent blend produces at least 16 percent reduction in carbon dioxide emissions.

So the industry is on the right track.

I would say that all this R&D that's moved us in this direction has been paid for by the industry

itself, so there's been no public dollars in this R&D.

In fact, we've invested maybe over the past ten years about $14 million.

What we've been able to do is decrease the household consumption use of oil for space heating from about 1,200 gallons per home to about 700 gallons per home; a 40 percent decrease in use that's been generated by the industry itself.

At the same time, we worked on biodiesel and lower-sulfur fuels that have helped bring more efficient appliances into people's homes where their systems run more efficiently and have less emissions.

So I think continued investment maybe by the government in those areas instead of just the industry would help bring more forward.

MR. SCHEER: Thank you, Michael.

Andy, have you a thought to offer?

MR. RONALD: First of all, I would say that our project in Finger Lakes, there's no federal financial assistance required to bring it about. It's tailored around the fact that Marcellus and Utica productions of propane and natural gas are going to produce enormous amounts of energy in that area. And basically, originating that propane supply in those two regions, which is going to grow again

tremendously, is already connected to our region with a pipeline.

Our facility will not only serve New York, the state of New York where it's located, but it will serve Maine, New Hampshire, Vermont, Connecticut, with product that comes into that facility by pipeline and goes north to the facility where it's distributed throughout the rest of New England.

I think there's a financial incentive for every consumer that helps support this.

Last winter, by avoiding the imported product that came into the country in the two import terminals that had to price in against world prices, it would have saved the average consumer of propane in New England from 4- to $600.

So it's infrastructure; that's all we need.

It's NIMBY. I understand that.

Now it's no longer the issue of let the product be produced in the Gulf for -- wherever it's being produced, it's being discovered.

Here in the Northeast, Pad 1-A and 1-B, and the trick is to get it to stay in these pads to the point that it equals what the demand is.

MR. SCHEER: Thank you, Andy.

Yes, Michael.

MR. TRUNZO: Actually, I might just ask Andy a question, so if I can.

In our fuel, we have our own infrastructure throughout the Northeast. And I know you talked about the need, and I know, speaking with Joe, the need for more regional storage in the Northeast and New England.

Is it a state or federal barrier you're running into in New York relative to the approval?

MR. RONALD: Certainly not a federal barrier.

But our permitting process in the state of New York where the facility is located goes through the DBC and the DEC commission. We've been going through that process for four years. And to say that we've answered every issue and every concern about the project that there is from a mechanical, from an engineering standpoint and from a subsurface, we have satisfied every requirement that they have asked for. And yet we still are waiting for approval.

MR. SCHEER: Yes, quickly, Tony.

MR. BUXTON: I can't do it quickly, so let's move on.

MR. SCHEER: Thank you. Lots of good ideas.

Lots of good suggestions.

I need to remind you, though, that all of these views are those of our panelists here, not the Department of Energy's views, and that through this QER process, which is multi-phased and -- over the next few months, there will be plenty of opportunities for other experts and individuals to contribute their ideas to this process.

So before we wrap this panel up, though, I would like to just come down the row here and give each of you an opportunity to quickly provide a final thought on the deliberations and any advice that you might have.

MR. BUXTON: Thank you.

I recommend that we follow the rule our parents tried to teach us, which is that we finish our homework.

In fact, in New England, the transition of natural gas was deliberately engineered politically by a combination of utilities, generators and environmental groups. And some of those environmental groups now oppose finishing the homework; that is, this footprint power plant that Kevin's talked about requires getting rid of coal, putting in natural gas.

That was the plan in the years 1995 to 2000.

And it's being carried through.

Now, the same people who supported that, who strongly encouraged it, are opposing supplying gas or allowing that plant to even become a gas pipeline.

Part of our job here is to finish creating the bridge that we described and using that bridge properly as it should be once we've got it fully established.

MR. SCHEER: Final thought?

MR. HENNESSY: A final thought. I would be remiss if I didn't mention this.

Every time I have the opportunity to speak, I like to draw the distinction that energy policy and energy politics are like oil and water. They don't mix. And yet we always see them kind of hitting up against one another.

I mean, it's -- energy politics are in two- and four-year cycles. Energy policy, you're looking at 10, 20, 30, 50 years.

I think we're -- we're trying to put the politics behind us here. So kudos to the folks for doing that. I think we're going down the right path.

The politics that Tony mentioned that I raised up in the North Shore, those exist. There's politics in play.

If you're concerned with energy as reliability, if it's price, if it's carbon, environmental, whatever your concern is, there's politics that are impacting folks.

So an example that we just went through in this region, many folks probably don't even know of it, it's -- Connecticut adopted a tax on the production of power in 2011. They had a two-year production tax of $2.50. Power prices were fairly low. They've skyrocketed since. That's an extra cost that is being borne by the rate bearers of this region. It's now off the books.

But as the states are now trying to get together to collaborate, you need to say, okay, we as a group need to focus on the end goal and put these one-off political measures behind us and focus on what's going to help the region.

So that -- the final thought is stick with the fuel diversity, stick with the collaboration and get rid of the politics and focus on the policy.

MR. SCHEER: Thank you, Kevin.

Joe, final points?

MR. ROSE: What he said.

MR. SCHEER: There you go.

MR. ROSE: Actually, what I wrote down --

what I was going to say -- I guess I will say this: More consumers using less energy, that's the key. Michael mentioned it.

It's happening in our world. It's happening in all worlds.

And the last thing I wrote was: Let the free markets work. Get out of the way. And to have government deciding what type of energy we're going to use can be dangerous. I think on that we would all agree.

MR. SCHEER: Thank you, Joe.

Michael, final thought?

MR. TRUNZO: Just as the United States is really poised to be truly energy independent, and it is, as the administration says, an all-of-the-above energy policy.

I think that for U.S. to move down that road, we need to keep that in mind, that there are all fuels that are going to make this country move in the right direction, and we don't have to rely on imports because we're producing all of the power and energy that we need right in this country.

We just need, as Kevin said, to get the politics behind us and move on with policy.

Thank you.

MR. SCHEER: Thank you, Michael.

Andy, final thought?

MR. RONALD: I think the energy revolution that's going on in our country right now is something that needs every one of our rethinking, about what it means to me, what it means to my family, and what it means to the region that I live in.

The situation that we have today in the Northeast is one that says that this tremendous change in energy supply, availability, clean energy supply is a tremendous opportunity.

It's an opportunity to run our garbage trucks and our school buses on cleaner burning fuels.

It's about -- it's about air quality. It can bring about a better air quality standard than we have.

We have to get out of the way and get the politics out of the decisions that inhibit the ability to bring that product to the consumers in the Northeast at the lowest value that they'll ever have in their lives.

It's here. It's now. Be a part of that.

MR. SCHEER: Well, thank you, Andy.

And now is the time to thank you, thank all the panelists for a really super presentation.

Thank you very much.

So now we segue into our second panel. If I could have our second panel come on down. Just like the Price is Right.

(Pause In Proceedings)

MR. SCHEER: That will be Marion, Bill and Dave and Scott and Margaret.

In our infinite wisdom, we didn't plan for any breaks here. So I really want to try to get as much input as possible.

Welcome to all of you.

So this is our second panel.

The focus of it is on reliability and affordability.

And our first speaker, you can either come to the podium or stay in your seat.

This is Marion Gold, as many of you know. She's the commissioner of the Office of Energy Resources for Rhode Island.

So Marion, the mic is yours.

MS. GOLD: All right. My challenge today will be to stick to my script, because I don't have a tendency to do this. But if I want to finish in five minutes before that buzzer goes off, I have to. And here I'm already off script.

Thank you very much to the Department of Energy and to Senator Reed's office for organizing this. It's really a great honor to have the Secretary and DOE come to Rhode Island to listen about our concerns.

And I'm pleased to have the opportunity to speak today about infrastructure needs for reliability and affordability from the state's perspective.

My name is Marion Gold, and I am the Commissioner of the Office of Energy Resources for the Lead State Energy in Rhode Island on energy policy and programmatic matters.

Our mission is to lead Rhode Island to a secure, cost-effective and sustainable energy future, working with the diverse set of energy stakeholders who are involved in the issue.

One of the most valuable and unique roles of the state energy offices across the country really is their ability to look at the energy issues from a holistic and comprehensive perspective, and also to take advantage of the tremendous resources and technology that we have available through the Department of Energy.

And I have my colleague, Wendy Lauder, who is the executive director of the Ocean State Clean

Cities Program. And I know if I have a question about alternative fuels, I can call Wendy. She will get right to her DOE contact to get the answers.

And the same is true with almost every other aspect of the energy system here today; a tremendous wealth of resources at the national level.

And again, I'm off script.

Going back to my script, in -- as the state energy office, in 2013 we undertook the first databased assessment of Rhode Island's energy system in order to develop both an aspirational and achievable goal for our -- roadmap for our energy future.

Our energy plan looks at the energy system in three different sectors: the electricity sector, thermal and transportation.

The first thing we did was to model our baseline energy data.

And this slide shows the energy in the three sectors.

The noteworthy point in this slide is that we use about the same amount of energy. We spend about the same amount of money on energy in each of the three sectors, but we emit more carbon from the transportation sector.

So this is both a challenge and an opportunity for us.

You can also see the dependence of the region of the state on natural gas as the green, so largely dependent on one fuel source.

What's in store for the future?

So as part of a plan, we modeled what our energy future would look like given current energy policies. We found the same trend in all three sectors.

Our electricity -- because of our energy efficiency policies that we have in this state, which are reflected in many of the other states throughout New England, and because of the federal CAFE standards for transportation, our energy use is already on track to decline over the next few years.

And interestingly enough, this is confirmed by ISO New England's forecast of electricity demand in New England. They now incorporate our efficiency projections into their estimates of how much electricity will be needed throughout the region. And we're predicting a decline.

So Rhode Island is already poised to make very good progress towards a secure, cost-effective and sustainable energy future.

But can we do better?

Our scenario modeling that we conducted with consulting shows that, in fact, Rhode Island has a potential to increase fuel diversity in each sector above 2013 levels and to do this by producing economy-wide net benefits and reducing greenhouse gas emissions, 45 percent below current levels on track to an 80 percent reduction by 2013. So this, we thought, was really quite remarkable news.

But investments will be needed.

The Rhode Island State Energy Plan supports the need for both local and regional investments in our -- continuing our robust energy efficiency program investing in the local, renewable energy and also pursuing importation of clean renewable energy from northern Maine and from Canada, significant investments in the transportation and the thermal sector as well as in the resilient, reliable power grid.

If we pursue all of these -- all of the above clean energy strategy, we have the potential for 8.8 to over $14 billion of benefits to the Rhode Island economy.

But we will need to make significant investments to accomplish this.

I do want to get to this.

One of the challenges we face is how to better leverage both private and public sector dollars to transform the energy system.

It's just not realistic for these costs to be borne entirely on the backs of energy ratepayers.

In fact, as we've heard this morning, the high costs are jeopardizing our ability to meet our goals in the short-term.

There's been a lot of news in the -- well, we're all kind of feeling the pinch of the high energy prices.

I will continue, really fast.

Because of this crisis of the New England governors, as you heard this morning, we believe we have to act together to find a way to spur investment in critical energy infrastructures. If we don't act, our power system will become increasingly vulnerable to electric service disruption, consumers will have to pay more for energy than consumers in nearby states, and our region is really going to be at a competitive disadvantage.

So by way of conclusion, in Rhode Island, we're continuing to robustly invest in energy, efficiency in the local renewable energy, in the local

economic opportunities and job creation that this offers. And I think some of my colleges will be discussing this, perhaps.

We also need to act regionally working with other New England states to make strategic investments in infrastructure, putting downward pressure on prices and strengthen our economic competitiveness.

I wanted to just conclude, and I have a really good chart here, by emphasizing the important role in the value of energy and efficiency.

We heard that from Secretary Moniz. It is the lowest-risk, lowest-cost resource. It locks in savings for future years. So now is the time to really step up the efforts to keep more dollars in the local economy by investing in these energy-saving, cost-saving technologies and programs.

Thank you very much.

MR. SCHEER: Thank you, Marion. I'm sorry that the slides failed on you there.

MS. GOLD: I can pass this around.

MR. SCHEER: As I mentioned earlier, all of the slide decks presented here will be up on the website in a day or two, so...

Thank you.

And moving right along, our next speaker is

Bill McCourt.

Bill is the executive director of the Rhode Island Manufacturers Association.

The mic is yours.

MR. McCOURT: Good morning, everyone. I hope everybody's enjoying the presentation this morning.

I did want to thank the secretary for gathering this group together. I think this is an important topic of discussion.

Energy and natural resources are lifeblood of manufacturing. And I'm here today to talk a little bit about the business perspective of a reliable, cost-effective supply chain.

We rely on adequate, secure and affordable energy in the raw materials we need in order to compete in the global market base.

We use about one-third of the nation's energy and are directly impacted by the cost of energy; not only in making the products that we sell but also in the cost of maintaining our operations, both administrative, office, warehousing.

We've achieved great efficiency over the cost effective distributive generation, combining heat and power technologies, waste heat recovery systems,

water use and recycling intelligent energy systems and more.

And through innovation, research and development, local manufacturers have played a significant role in energy efficiency outside of our own industry.

Despite the increase in productivity and the exchange that we gain by trading off labor with technologies and increasing the GED over the years, from an electricity output and energy standpoint, manufacturing has remained at the same level since 1975.

That's the top line.

The green line is the manufacturing sector.

While other sectors, like the commercial and industry -- the commercial sector, residential and transportation, they all increased over 1975.

We've also been a leader in energy efficiency in alternative uses.

You can see here that in this chart, we far outpace and we've used almost 20 percent more than the transportation, residential and commercial sectors combined when it comes to energy efficiency.

And I think also our usage across the board -- and again, we rely on all different fuel sources in

order to power our operations and you can see in all instances, we are down and we continue to go down because we're using more energy efficient technologies.

A lot of this, I just wanted to put out there, because it's all about dispelling some of the myths regarding what we do in business and what business actually consumes.

Here I want to draw a correlation, too, that almost 50 percent of the gas-fired generation is a significant portion of the generation mix for New England.

You can see on the pie, on the right, the half over there is gas, and that eats up 43 percent of the mix.

So we still have a high reliability on natural gas here in New England.

But we're also starting to move away into industrial gases, and that's up also.

You can see the consumption of industrial gas, and also what's been happening at L&G fueling stations across New England and what that means.

What I thought was interesting here is that if you look in the New England section, there are no planned refueling stations in New England. I think

that's problematic, again, because we look to other sectors.

Some of the driving forces behind what's happening in New England is going to be the retirement of some key energy sources over the next couple of years.

You can see here we have a high relationship on coal and energy and we need to -- and nuclear energy. And part of the dependence on these plants needs to be replaced. We need to plan for this.

I guess in conclusion, I just want to reiterate the fact that we are a significant consumer of energy in the country, and we recognize that energy efficiency has to be an important player in what we're trying to do today.

We rely like everybody else on an above-all approach. We also are concerned about the amount of regulation and intervention.

We're also concerned about the amount of energy programs and energy efficiency program and the fact that sometimes the government is betting on one strategy over the other. I think that's apparent in deep water wind. That is something that we do oppose because of the cost impact.

While we do agree that wind is an

alternative energy source and something that needs to be explored, we're very concerned about what that's going to do to our cost competitiveness as that project comes on-line and I think we have to be concerned as we look at financing other projects.

We like to rely on the private sector and we believe that they will come up with the answers given the chance. And I think government's role is in smart regulation and not picking winners and losers when it comes to energy consumption.

Thank you.

MR. SCHEER: Well, thank you very much, Bill. We appreciate your comments.

The next speaker is David Caldwell. He's the secretary of the Rhode Island Builders Association on the end use of the energy side of the equation.

MR. CALDWELL: Good morning. Thanks to the Department of Energy for inviting me here today on behalf of the Rhode Island Builders Association and our company, Caldwell & Johnson Custom Builders, which is a partner of the Department of Energy Building Technology's Office Challenge Home Program.

So part of what my role here today -- they asked me to come and be on a panel about infrastructure. I said, I don't know anything about

that, but I do know about what happens at the very end of the line.

What's at the end of that line is going to be your house or your job or your building.

Buildings consume about 70 percent of the energy in this country, more or less. That's a global number. So we're talking about millions and billions and trillions of numbers around here, and things, again, I still don't really understand.

There's a lot of it. The numbers are really big.

But what I can bring home to you is what happens at your house or your apartment or your place of business when you open these electric bills and gas bills. And they're getting big. Everybody seems to grasp that pretty closely.

So what we have is a test project from last year. And this is on the website of the Department of Energy, which I didn't get my slides in on time.

But take a basic 2,000-square-foot house. It looks like a nice house. I would put an energy label on that. It looks like this.

And this is all on-line if you just Google it.

That house scored on the channel zone

originating of 46. It's part of the program of DOE, taking that residential house and making it 40 to 50 percent more efficient than a comparable brand-new home, just right off the bat, without even talking about solar. Bam. This house is going to save the homeowner about $200 a month. Pretty good. And a little bit off from that, and it actually works.

So these are the efficiency-type things that we're talking about as far as this entire paradigm and infrastructure; but the end-use user who still needs electricity, how can we drive that lower, part of the whole global solution.

Also, on the other end of the spectrum, I chair the economic development board in the town of North Kingstown where Quonset Point is located. They've been there a long time; even had a facility in Quonset Point.

And I can tell you, years ago nobody really talked much about electricity. It's something, you know, you kind of had a discussion, yeah, we have to monitor that, but it wasn't a driver. But now it's becoming a significant driver on businesses, even places that aren't equipped, like Toray Plastics that are huge companies, national conglomerates, companies. Seafood processing companies, a tremendous amount of

refrigeration they use down there. They're seeing some pretty significant impacts on their bottom line. Some of that they can't pass along. If they do pass it along, again, it's once again borne by the consumer down the end of the line.

A lot of these energy costs are dollars I hate to say are leaving your house, leaving your business, leaving the state.

So having to recapture that one house, $2,500 a year, they don't have to spend any more. They're very happy. They actually perform slightly better.

One customer and one house saved, just energy efficiency alone.

And if we put solar panels on the back of that house, that house would be net zero.

That's the second part of that type of program.

So these are programs that save a lot of money, create a lot of good jobs. These are construction jobs. These are local jobs. Puts money in the economy. It's saving money for consumers. It's trying to get you down the barrier why that cheapest price isn't the lowest cost.

So I have this conversation with a lot of

people. I show them the product. They say, That's a great idea. Why doesn't everybody do this?

I say, Usually people don't know.

If I brought you out to buy new car and you looked at two cars on the new dealer's lot, they're identical in every respect, you can't tell the difference. They look exactly the same. One costs $20,000 and one costs $20,400. Which one would you buy if that's all you knew? You'd buy the one for less money.

But if I said the one for 2 percent more money more than doubled your gas mileage, without even running the numbers, intuitively which one do you think is the better value proposition?

It's the same thing with the houses we're building. It's about 2 percent more money to do it right, cut the load down by less than half. It's a few hundred dollars a month extra in the pocket. Stay in the state, contribute to the economy, creates jobs, follows that cycle.

That's what my role here today was, to kind of bring that thing home, and I did intend the pun. So everybody can understand, touch the utility bill, while the really smart people are really working on the really big stuff, spending billions of dollars.

Thank you again for having me here today. I look forward to any questions you might have.

MR. SCHEER: Thank you, Dave.

Save the applause to the end, please.

The built environment is in a way part of our infrastructure. So while you don't know much about infrastructure, there is the built environment to consider.

So next we're going to hear from Scott DePasquale. And Scott is president and CEO of Utilidata.

MR. DePASQUALE: Thank you.

Good morning, ladies and gentlemen. And thank you for giving me an opportunity to speak. And thanks to Secretary Moniz who has played such a leadership role in catalyzing the investments in innovation and technology.

Technology is the one thing that can allow us to grow the economy and still -- and do it in a way where we're not increasing the energy infrastructure.

A lot of investments have been made there. We have done some well. We're still learning on others.

My company specializes in equipment and software that allows utility companies to better

automate and manage their power distribution assets.

I said to my wife yesterday, I said, I have five minutes to deliver a message about the nexus of the Smart Grid and cyber security and how we need to invest in it over the next five years.

And she said, Scott, you can't deliver a message on anything in less than five minutes, let alone cyber security and grid.

So with that, I will apologize for some scripted remarks.

But today nations face the challenge of increasing the availability and reliability of power while at the same time reducing the carbon footprint.

The answers in information communication technologies will allow utilities to minimize power loss and downtime and harness alternative and distributed power resources. These changes utilizing technology are leading in the development of a smart, more resilient efficient grid.

However, while Smart Grids bring about improvements in system reliability and cost and performance, they also make security a more prominent and complex issue.

The primary driver behind the Smart Grid is the increased reliance on supervisory control and data

acquisition systems, which is also known as SCADA.

SCADA is a category of software and hardware components that gather data in real-time from remote locations in order to control specific elements on the power grid.

Most aspects of electric power from generation to distribution are controlled by SCADA systems. Many of these systems are intensively networked, and in many cases are networked wirelessly. This interface between cyber space and physical space, sort of the Internet of things, is vulnerable to attack by hackers who may be criminal terrorists or agents of foreign governments or militaries.

Let's look at the traditional infrastructure of the grid. Currently, the grid consists of generation, transmission, distribution and the consumption on the demand side.

Our work towards a Smart Grid represents an evolution of digital upgrades to the existing power distribution infrastructure, which is over 100 years old in many parts of the Northeast.

The integration now connected in intelligent grid devices with advanced information and communications technology represents a bigger opportunity to nefarious hackers than the Internet by

itself has exposed us to in the past.

Traditionally, power coordination systems have been isolated from corporate networks or the Internet.

Today, the decreasing costs associated with mass scale of wireless communications are allowing utilities to network many more field devices.

Couple that with the advances in automation technologies which drive deficiencies, and the result is a greatly increased threat surface for cyber attack.

Let me break down the typical types of cyber attack that we routinely see in a power grid.

The component attack. The nefarious attacker remotely attacks a specific field component of the remote telemetry.

Once they have command and control of this unit, they essentially have an open door to the control network of the utility.

The second attack classification is a protocol attack. This involves reverse engineering data acquisition protocols which could allow nefarious hackers the ability to damage field equipment, send misleading data back to the control systems and ultimately create widespread and sustained loss of

service.

The third type of attack is policy attack that involves denial of service (inaudible). This typically stops real-time data flows, resulting in control centers failing to have a complete picture of the grid, which in turn can lead to incorrect decisions, downtime and costly interruptions.

As I mentioned before, the development of a more distributed Smart Grid requires new thinking when it comes to cyber security. Traditional cyber security solutions exist today to protect IT networks.

However, IT-based security solutions fall short of protecting critical control and automation functions of the grid.

SCADA systems were not designed to be a general -- for the general IT environment, and they weren't designed to be connected to the Internet.

In stark contrast, the Smart Grid security priorities are safety, reliability, protection of equipment, power lines and consumers.

Let's factor in one more layer of complexity, the blend of Smart Meters. Each Smart Meter wirelessly communicates with the utility and, therefore, each Smart Meter could potentially be hacked and used as a route of attack.

We know that nefarious actors in countries are consistently working on U.S.

critical infrastructure, including the grid. It's not a matter of if; they're doing it today.

Take, for example, the recent events in Connecticut where elements of power grid were penetrated.

Richard Clark is one of many security experts who have identified the power grid as a major national security vulnerability.

The smarter the grid becomes, the more attractive and vulnerable it may be to hackers. And this is precisely why collaboration between the public sector and private sector is essential. It's important that regulators work closely with utilities to support programs and investments in cyber security, in parallel with broader investments and distributed generation energy efficiency and the Smart Grid in general.

Additionally, it is important to the government to work closely with industry and the venture capital community to foster innovation in this space.

A strong public/private partnership can catalyze action for more security in the future.

Thank you.

MR. SCHEER: Thank you very much, Scott. Much appreciated.

Our last speaker is Margaret Curran. And Margaret is the chair of the Rhode Island Public Utilities Commission.

And, Margaret, the mic is yours.

MS. CURRAN: Thank you. Good morning.

I want to also thank Secretary Moniz, Governor Chafee and Senator Reed for supporting this important discussion on the need for infrastructure to support affordable and reliable energy in New England.

I think that I'd probably side with the speakers who spoke of being fearful looking forward.

The Public Utilities Commission doesn't have any direct involvement in our control of infrastructure. But questions of reliability and affordability are of tremendous concern to us.

From the Commission's viewpoint, something has to be done to figure out how to reduce energy prices and price volatility in our region to provide long-term, affordable reliability.

New England, as previous speakers have alluded to, is out of step with the rest of the nation's energy prices. We're paying more. And much

of the extra costs and average and peak prices have been connected to our existing energy infrastructure.

We need the type of infrastructure that can perform during the cold winter without inflicting serious economic harm to ratepayers.

As many of the prior speakers have discussed, this past winter provided evidence that we currently lack such infrastructure.

I think also that residential ratepayers largely have been protected so far from the tremendous volatility in the natural gas market during the low temperatures that prevailed for so much of the country and so much for our region. But those increases that the industrial and commercial ratepayers have seen more closely will be coming to the residential ratepayers also. And I think that the shock of these increases will continue to drive us towards solutions as quickly as possible.

As chairperson of the commission, indeed, the commission wouldn't advocate any particular solution. But we can see what's possible for increasing fuel delivery and transmission in New England and as well as creating new generation and energy efficiency within our borders.

Looking at all of those possibilities for

the sake of rates and reliability, it's easy for the commission to be able to support any of the plans or any combination of plans currently moving forward.

Whether some problems are solved by rule changes that ISO-New England can make to signal to the market that it's time to put in a new infrastructure or by the New England governors having discussions on creating new infrastructure, that's not as important to ratepayers who are at risk for continually skyrocketing gas and electric bills.

It's one thing to ask ratepayers to cover increases in their bills for programs that provide benefits. Rhode Islanders are out there looking at the components of their bills for renewable and energy efficiency and programs and put trust in all of us that these increases -- that these components provide benefits to them.

And indeed, the research shows, as Commissioner Gold spoke, it's an important component of the energy picture for ratepayers.

The thought that last winter was just a small taste of what's to come should have all players and all solutions on the table.

I'm happy to be here with the diverse panel of business and energy leaders to discuss the

prospectives on those needs and solutions, and I look forward to continuing to provide the Department of Energy and the Quadrennial Energy Review task force with that perspective.

Thank you very much.

MR. SCHEER: Thank you, Margaret. Much appreciated.

So Panel, I'm going to move my chair here so I can see all of you.

Try to -- I guess you know the drill if you were here for the first session, we're going to try to follow that same one here.

I've got a couple of questions and we'll kind of come down the line and proceed that way.

So Marion, get ready.

MS. GOLD: I'm ready.

MR. SCHEER: The first question is -- the very same first question I asked before, kind of a cut-to-the-chase question in a way because we've got the Quadrennial Energy Review and would like to give each of you the opportunity to provide specific recommendations for -- regarding appropriate federal roles and helping to address the infrastructure constraints, reliability and affordability with this panel in terms of executive, legislative, regulatory,

administrative action.

So if you have some specific ideas to share with the department on federal -- appropriate federal rules, this is your opportunity to do so.

MS. GOLD: No pressure. What do they say on "It takes a Millionaire? Can I call on somebody?"

Well, I would say that I think that the Quadrennial Energy Review -- I was chatting with someone earlier. We talked for a long time, when I was teaching down at the University about the fact that there was no national energy policy. So the fact that the nation is taking -- doing what we're doing, taking a database look at our energy future and in convenient groups like this across the country, bringing groups together, it's incredibly important.

That's one thing.

I support what was said here about the need for federal support for the proposals that are going before FERC. We really do need to come up with a solution to this.

The fact that Senator Reed and Secretary Moniz are aware of the problem for New England and watching closely for opportunities to advocate on behalf, I think is very important.

Three, I think one of the issues that we see

in the public sector is that these issues are incredibly complicated. And it's really important that we have the resources in the state to deal with them, which means in some cases continued federal funding along with the technical assistance.

And we have some really terrific national research labs that are run by DOE. And one of the perennial challenges they have is how do we get that information out to the public.

I think channeling it down through the states out to the localities is a really important role for the federal government.

MR. SCHEER: Thank you.

Thank you, Marion.

So, Bill.

MR. McCOURT: Not an easy act to follow. But I think -- as I said earlier, I think part of government's role is to set smart regulations. I think we tend to look a little bit too narrowly focused.

This is a global marketplace. Businesses provide a very real benefit to people. We are not just the abusers of the environment and the abusers of people. We provide high-quality jobs, well-paying jobs. We provide career pathways.

And again, the emphasis on the global environment. I think when we're setting both our energy policies -- and as Marion said, it's very encouraging to see that we're setting a policy. I think that's great.

I think we need to stop shortpicking winners and losers. I think we need to let some of the natural competitive juices come to play. But I think we also have to look at it even from an environmental standpoint.

I think a lot of times we've done a lot of great work here in the United States, increasing regulations on air emissions and so on and so forth. That's terrific.

However, at times, the costs that we've imposed on some of the local businesses, we've done nothing but export these products to our competitive nations across the globe, who are not nearly as efficient as we are here in the United States.

So in essence, by some of these policies, we've actually worsened the worldwide pollution problem while doing a lot better here on our home soil.

So I think we have to pay a little bit more attention to the balance here.

MR. SCHEER: Thank you.

Dave.

MR. CALDWELL: I thought Senator Reed had -- of course, Marion knows the most about this -- which is a very good programs coming down in Rhode Island right now in current legislature.

But Senator Reed's basic synopsis is conservation, efficiency; some of the things that aren't too exciting, weatherization, a little bit of distributed generation in there, talking polar vortex, wind, thermal, hydro.

That is becoming very cost effective even in the Northeast.

I think one of the other panelists, say in Connecticut, it is more effective than Arizona on a cost basis.

There's a lot of ways to look at that.

So I look at the aspect for that right down to the end user. How do you keep those dollars in the economy?

How do you create good jobs for the people to do that work?

Let the consumer know, yes, this is money well spent right now. Many of the consumers don't know that or have the financing available to

understand that the upfront cost over the time is a good deal.

And, last, there is a pretty significant piece of this with, you know, climate change-type evolutions.

We all agree we want to do what's good for the environment, specifically those of us who have children want to leave this a better place.

I'd like to see personally more clean energy to move forward in that regard, because we are exporting so many jobs.

If you've been overseas to the Third World, we've seen the epic pollution that goes on there. I've seen it firsthand. I've lived it. I believe the best thing we can do for the environment is a healthy economy that gives you an economically and environmentally sustainable future. That's my own opinion.

This energy discussion requires a big piece of that as well.

Scott.

MR. DePASQUALE: Yes. Reliability is not something that you think about at 2:00 in the morning when you have a mass scale power outage on Thursday or Friday morning.

Reliability comes from systemic or long-term planning infrastructure. It contemplates working with regulators at the state level and working with the federal government to understand what is the right balance between investments in infrastructure, security and hardening. Not everything is practical. And there's ratepayer expenses associated with some of these investments.

What is the right balance?

What I worry about is -- I think there are a lot of technologies that can make wind less expensive and less impactful to the grid, to the power grid of technologies and other storage technologies, some of which don't need subsidies anymore to be profitable and funded from the private sector.

And other communications, we're seeing now in California, mass scale wireless devices that are allowing homes to be networked. And we'll see what the long-term benefits of that program are from a demand/response standpoint.

But more and more, these technologies are financed without deep government subsidies.

But on the other side of that, back to my point about cyber security, we're building this thing called the Smart Grid. We're hoping that it makes

resources available in a very economic way, to your point, David. And as we do that, we have to invest in parallel international security elements of it.

For me, I think it makes sense for the federal government to play an active role in catalyzing some research in that area to make sure that we're building those technology capabilities up in tandem.

And I think that work at the state level with the regulators could really help us think about how we make those investments and rationalize it to the ratepayers.

Our company is a digital technology company. We automate processes. We create efficiencies. We don't require any subsidies to get a two-, three-year payback for the ratepayer.

We have never taken any federal dollars to support the research or development of our product to take it to commercialization. Yet where we found a good public/private partnership and where we found the intention to continue on both federal and state levels from a regulatory standpoint, how do we qualify these tools as energy efficiency tools?

How do we rethink about energy efficiency?

Is it just a compact fluorescent light bulb?

Are there subsidies to do retrofits?

There's a broader suite of opportunities to allow the utilities to create operational efficiencies where the consumers don't ever have to change their behaviors.

So I would like to see a continued effort on that.

And, frankly, I worry, coming out of six years of a tough economy, the dollars that were spent. Some of them were spent well. Some of them were not spent well. Some of that was done really well by the federal government and other parts of it were not. Right? We learned from that process.

But what I think is important is that as a country, we took risk. We saw international interest and we moved forward. And we are learning how to do that in a time where even Rhode Island and even Maine and Vermont are exposed to global issues. We are now exposed.

The vendors who sell technology to help drive these efficiencies may or may not come from the United States. They may be affiliated with state actors.

We may export natural gas some day. The gas is $14 a decatherm, you see through L&G trade. Right?

And the rest of the world doesn't have a lot of it. So I don't think we can afford to be insular and I would like to really see more investments being made in technology, particularly on the cyber side by the DOE.

MR. SCHEER: Thank you.

Margaret, specific recommendations for appropriate federal roles in this?

MS. CURRAN: Thank you.

I think I have to certainly rely on the comments of all of the prior speakers and also recommend to the Department of Energy to the extent that they can that they assist with the appropriate federal rules being able to drive forward the current needs of New England that have been presented by all of the politicians. More, perhaps, federal support through FERC for driving the necessary infrastructure changes that New England needs, and that FERC notes the need problems that New England and Rhode Island, as part of New England, face in rising energy prices.

MR. SCHEER: Thank you very much.

We've heard consistently in both panels about the rising prices, the volatility of prices, the need for capital investment, and we've also heard about the role that planning at the state level, at

the regional level, comes in helping to organize all the different stakeholders to reach agreement, move forward.

And my next question is a little bit of a brainstorming here, and I don't want to throw curve balls at you necessarily, but I'm happy to as well.

But the idea about public/private partnerships to achieve those and private industry and government agencies at the local, state, regional, federal levels and engaged with each other, and New England's been a pioneer in many respects in those kinds of public/private partnerships. There's a whole alphabet soup laundry list of them.

And so my specific question is: What are your suggestions for either revising some of the existing public/private partnerships that are out there, or maybe there are some opportunities to develop new ones that are focused on some of these specific areas that we've been bringing up that you would recommend involving either state, local, regional, federal efforts and entities coming together to address these regional infrastructure constraints.

So it's public/private partnerships, the existing ones, changes, or do you see an opportunity for new ones?

So Marion, we'll start with you.

MS. GOLD: I'll lead off. I don't have a detailed answer, but I think there's great opportunity in the infrastructure area in terms of financing.

If we can get the public/private partnership together to leverage both public funds and some private capital to say, transform our building stock or build out the energy infrastructure. I believe that there's some very good work going on in the Pacific Northwest that we're going to be looking into to see if that might provide a model.

One of concerns we have in Rhode Island in particular is the affordability of the infrastructure, and we have a changing demographic in the state where we have a more growing minority, immigrant population. I guess it's going to be up to 40 percent. We have more people living in rental housing. There's a tremendous -- and they can't afford to make some of the investments that others can make.

So how do we leverage private and public capital to help transform our system?

So in the finance area, I guess is the conclusion. This is something that we've done in the clean water area in Rhode Island quite effectively.

MR. SCHEER: So there are models for it.

MS. GOLD: There are models. And we're starting to do it with the transportation center. And I think that's a great opportunity for our state.

Thank you.

MR. SCHEER: So Bill, do you have some thoughts on this public/private partnership question?

MR. McCOURT: I do.

Apparently, we're talking about changing demographics. I thought you were going to say looking older.

MS. GOLD: That too. Present company excluded, of course.

MR. SCHEER: Absolutely.

MR. McCOURT: I think the other area and the finance end is certainly one, and we agree, the aging infrastructure, especially in New England.

And we still see gas as being a significant player in what we're trying to do and align losses. Those are all challenges.

We acknowledge the fact that there has to be significant investment, not only just in the natural gas pipelines, but all the various strategies that are out there.

Perhaps one way that the business community needs to get involved and the government agencies need

to embrace their involvement is in trying to find creative solutions to solving some of these challenges.

Businesses have done this all the time through innovation and a lot of other research and they've solved other problems. And I think what we need to do is we need to get them sitting around the table with the government players, trying to outline what some of the strategies are and try to see how we can help tap into the business community and come up with some solutions.

MR. SCHEER: Thank you.

David.

MR. CALDWELL: Sure. I moved back from the West Coast, so I'm a little more familiar with BPP projects than many people back here.

But it's an excellent model moving forward in terms of scarce government resources, which are going to continue to be scarce; extraordinarily cheap capital available right now, whether it's with the backing, the implicit guarantee from the government, you know. I'm pretty confident you'll find that.

There's a lot of appetite in the marketplace that involves infrastructure funding.

Additionally, on the same theory, the clean

water fund revolving funds, perhaps, would be an idea for triple-deckers in Pawtucket that are losing a lot of money. They're going out the window, with the rental population, where that dollar figure is huge. That has an enormous economic impact on many of our urban core buildings, those triple-deckers. That can be a substantial, in my opinion, win for Rhode Island, for our economy. A little bit of construction activity to fix them up. Save a lot of money in the pocketbook of a lot of the people living in those buildings, below-average incomes, working hard, trying to get ahead, but they're throwing dollars out the window literally.

So if we could figure out a way to close that gap too and create some sort of public/private venture revolving fund, that would probably be very well received, just that initial upfront cost, try to get that long-term value.

MR. DePASQUALE: Thank you.

So this is a fairly diverse panel. I'll speak very discretely about the power industry.

You need -- as I said before, if you have aging infrastructure, you can't rip it out of the ground to replace it because it would cost trillions of dollars. You start with intelligent devices, then

you use resources like solar and battery, wind and batteries and other things to solve these problems, and you reduce your carbon footprint to the extent you practically can.

As you're doing that, you're networking devices. Communications are cheap. Right?

And as we move into these two things together, what I think we see a lot of, where we see a lot of gray space, where even our large utility partners really don't have a full grasp on is on the security side, DHS and various government agencies have been working with the commission critical infrastructure thing for a long time.

Back in the utility sector, a couple of exemplary utilities are really good at this, but by and large, they don't really have any insight into what the government has learned, and there are some obvious practical reasons the government doesn't share some of these threat assessments.

So what we find out, we're deploying, for example, Utilidata, we automate and we communicate with the devices in the field that drop -- lost power by 3 to 5 percent.

The consumer never has to do anything. It pays back quickly. Right?

And so in the process of doing that, we open the grid up for attack, because you can sit in a cafe in Tel Aviv and then access something from somewhere that you probably shouldn't be, on less money that it would cost you to go build a fighter jet or train an army somewhere. Right?

So as we look at the work that DHS and others do, we look at what DOE has done, with the nuclear software security, and we would like to see some kind of a working group with the utilities that give them more access to information in the appropriate ways so that we can get the utilities to understand they are moving passive traditional IP constraints they have on security, which is network administration and data privacy and security and the financial issues to this new kinetic piece of it.

We think there could be a better interaction and we include DOE to facilitate some of those discussions.

MR. SCHEER: Thank you.

Margaret, do you have a thought here on public/private partnerships?

MS. CURRAN: Well, I think it's difficult from a commission vantage point to say that any particular ones that are already existing should

remain or new ones.

We would just want to encourage all of the creativity that's been expressed by the panel members to bring those things to the commission for ratepayers, getting better reliability that they know that they can count on and trying to keep the overall cost down, showing that the programs that private -- public/private partnerships may create are, indeed, cost effective for ratepayers.

I think that, unfortunately, in Rhode Island, a number of people have been and continue to have difficulty paying their bills, including utility bills. And for at least the near future, that looks like it's getting worse.

So I encourage all of the ideas that people are advancing here.

MR. SCHEER: Thank you.

This affordability is a thorny problem. And to come up, both panels, and we've talked about it, I'm going to give you a chance to talk about it again in yet another way, one of the mechanisms for bringing cost down is research and development. And there are technology gaps within the energy infrastructure space and in supply, storage delivery demand.

And so I would be interested in hearing your

thoughts about -- your priorities, your technology development priorities.

This is an area where the federal government has played a large and significant role and will continue to do so.

So a chance for you to offer your ideas on what you believe the most significant or important research and development priorities are for developing new technologies and innovations in this space to address the infrastructure constraints that we have.

So Marion, you get to go first. That's always your good fortune.

MS. GOLD: I was fascinated when I was out in Golden, Colorado a few weeks ago on the State Energy Advisory Board to DOE. Again, as I mentioned earlier, their longstanding challenge has been how to make people aware of the really amazing research that's going on in Golden. That is something that DOE continues to grapple with and we're talking about a lab voucher system where we could send someone like -- someone on Scott's team out to Golden or have someone from Golden come here to work on an exciting, new technology under development.

MR. SCHEER: Golden is?

MS. GOLD: Golden, Colorado is the home of

the one of the national --

MR. SCHEER: National Renewable Energy Lab?

MS. GOLD: Yes. It's really an amazing facility where they're doing all kinds of research on grid integration.

So I know in Rhode Island, the issues that Scott has brought up about the cyber security and Smart Grid, those are issues that are obviously paramount, along with the cyber security. And that's something I think where we are going to need the DOE-level involvement. That's critically important.

Energy storage is the other issue that we're highly linked to the small extent here in Rhode Island, but we need more research on that.

MR. SCHEER: Thank you, Marion.

Bill, do you have thoughts on research and development priorities?

MR. McCOURT: Well, maybe not so much on priorities.

And I think Scott's point about cyber security and threats as more of this data becomes in the cloud-type information and accessible, I think we have to be worried about hacks and breaches and so on and so forth because it is a national security issue.

I think particularly the research and

development, again, may sound like a little bit of a broken record, but it's reliance on the private sector and embracing the private sector.

I think -- I'll go back to -- one of the earlier panelists mentioned about this stability and lack of stability of the business planning. And research and development credits are just another prime example where there's been inordinate discoveries by the private sector that the government has then leveraged off of and taken -- and used in their domain. And those things happen because the public sector has a means -- or the private sector has a means of going out and tapping into that potential. So I think just adding some stability to the research and development.

And that said, I think the next thing would be embracing private sector discoveries, whether or not we need to do a better job of taking some of these new technologies that are being developed by private citizens and trying to help them along and perhaps being a little bit more open to interpretation of rules and regulations.

If it seems like it's a viable opportunity, let's expand the applicability a little bit to give it a try.

MR. SCHEER: Thank you, Bill.

Dave?

MR. CALDWELL: Sure.

We've been very fortunate to work with the DOE's Building Technologies Office. And I happen to know they work with the National Rebuilding Programs. So you're starting to see some private sector, public sector, little bit of academic research starting to get together to the end user.

Business on my end of the world hasn't quite caught up that to that yet. But they're doing some really great things down there. They're probably not getting as much publicity as they should. There's some really smart people doing the work. I can attest to that.

They've been a big help to me. I've used a lot of their research in what I've been doing. It was essentially free me to use; free for anybody to use. It's been a great resource. I think they're doing a good job.

I'd like to see more publicity on your end for the good work you're doing.

The same thing with Marion's office. Hopefully that will be coming forward this year.

It's all coming together a little bit on my

end of the world and I hope to keep that moving in that direction.

MR. SCHEER: Thank you, sir.

Scott, you've already spoken on this topic, but you'll have an opportunity to say more if you'd like.

MR. DePASQUALE: The only thing I'd add to the comment, as far as areas for investment, we've watched the generation side. I don't know what or how exciting or what new innovation there is there.

It seems like what I've seen is there's a lot of investments in this middle space.

How do we deliver it? How do we make it more operationally efficient? What are the tools and utilities and consumers can use to do that?

But I would say that at the very end of the distribution circuit, the commercial and industrial customers have an opportunity to become more self-reliant on the grid, so everything from building automation systems that help them more intelligently manage and control their own usage, and their own potential generation is a generation resource to help cost them down.

I think the development of microgrids and the ability for communities and businesses and

industrial parks and the military to island themselves is going to be very important.

I think the technology that allows them to manage that now, reliability, because utilities have been in the business of developing and selling low-cost, reliable, safe power. People take that for granted, when you start talking about this concept of microgrids where you're islanded. Right?

Well, then how are those microgrids going to maintain reliability? How are you going to interact back with the grid?

I think there's a lot of development work that should be focused on there.

As far as the -- you know, going to the labs in Colorado, we spent some time in the national labs. What I realized is we sell a product that had to do with efficiency for the utility and now we're being forced, for national security reasons, to sell a security product.

We didn't get into that business. And to be competitive doing it as a company, right, we're not asking for big subsidies, but we need some help.

And I think that when we went out and set up a joint venture with American Electric Power to bring them our R&D process and we're doing a similar with

our utilities.

Having the government involved in that process and bringing them here, getting the government not to just to write a check but to send people, allocate resources, that could be a game changer.

Thank you.

MR. SCHEER: Margaret? A thought on R&D priorities?

MS. CURRAN: I think that encouraging research and development in those areas where there's been shown demonstrated economic advantage for ratepayers, people have already referred to storage, energy efficiency, demand reduction. So that would be it.

MR. SCHEER: Thank you. Thank you. Thank you.

Just excellent thoughts and good discussion.

Before we wrap this up, I want to give each of you an opportunity to provide a final thought, a little word of wisdom to the Quadrennial Energy Review team that's here listening.

Marion, a final thought?

MS. GOLD: I'll take advantage of my final thought to talk about the really good work that's going on within the state, regionally and nationally,

on preparing our nation's energy system to be more resilient in the face of climate change, induced weather events and sea level rise.

As we speak, there's a terrific panel, the Governor's executive council on climate change, which is focusing on both climate adaptation and mitigation. So the recommendations from our energy plan will be wrapped into that.

We're very much working with partners very closely with the utilities who've done some great work in Rhode Island to harden up our electric and gas system, also working regionally and nationally.

So I think this is really important and encompasses all of the challenges that we face.

The last thing I want to say is I think it's really important that we do keep our eyes on the international ball, because we do not want to be just transferring our environmental problems over to China, which is in a lot worse shape than we are environmentally, and they're building a new coal power generation plant every week.

Sometimes the interests of our business community are to expand in our areas where it's cheaper. It's just a complicated, brave new frontier, I believe, for the United States and our business

community.

MR. SCHEER: Thank you.

Bill, do you have anything?

MR. McCOURT: Thank you, Marion.

I'm going to have to put her on my payroll for that last comment. That was terrific.

I think one of the messages from a previous panelist is he indicates that we need to finish our homework. I guess we would add we need to finish our homework perhaps with a twist.

I think we are very, very quick to condemn some older technologies based upon what we knew at that point in time. And what we failed to embrace is that every day, things are changing. Every day people are creating different ways to do things, more efficient ways, safer ways, so...

We can take the fracking discussion and we can weigh the pros and cons of fracking and you can talk about where they are today and look at where they were five years ago and where we've come in technology from a safety perspective and environmental protection perspective.

So I think we need to keep an open mind to some of these things that we're working on. Just because it's a no today doesn't mean it should be no

forever.

MR. SCHEER: Thank you, sir.

Dave, a final comment to offer?

MR. CALDWELL: Sure. I'd like to emphasize Scott's point when he said, we don't need money, we need people.

I'm seeing the DOE and I can tell you, Marion's office having a more collaborative role, rather than regulatory, which has historically been the case, thou shall do or not do, and smack you around or send fines.

I think that's a very different paradigm shift. I'm starting to see it. It was a big help to me. And I think there's a role for DOE to have a very strong leadership position and also be collaborative with the business moving forward. It's developing and been very good to me.

MR. SCHEER: Scott, a final thought?

MR. DePASQUALE: I'm going to stay with the same theme. There's a lot of "Rubber meets the road" here as far as technology and things we can do from a regulatory standpoint, a policy standpoint.

I'm back to the things that people have a hard time understanding. If we don't see it, we think it's not real.

And with cyber space, I would leave you with the departing thought that in five years, you will have ten-fold the amount of devices connected to the Internet on the grid itself, if not a multiple of that even.

And in five years, that means that conflict in Russia, conflict in Korea, in China or somewhere else in the world that we haven't envisioned yet could have a real kinetic impact on your reliability and whether you get power inside of your home and your business.

And I would just recommend that as we think about all of these things, that the investment in the national security side and the dollars that need to go to supporting that today are important because, again, the reliability isn't figured out at 2:00 p.m. on a Thursday morning or a Friday morning when the power's out and we've got to back-fit it. We're just not seeing the level of connective tissue.

I would say the call to action here is not just at the federal level of DOE or DHS, it's at the state level and it's making sure the state regulators are part of the discussion about where do ratepayers need to invest to support all of these other things in technology -- investing in when we talk about

efficiency.

MR. SCHEER: Thank you, Scott.

Margaret, you get to offer the final, final thought.

MS. CURRAN: I would actually like to echo Commissioner Gold's comments about the current level of collaboration and cooperation in the region particularly, but also nationally, just given the fact that we're all sitting here addressing the part of energy.

While it may unfortunately be largely crisis-driven in New England, I think that that level of collaboration and cooperation is probably one of the most heartening things that we can now see on the horizon. So that gives me at least some comfort that these great ideas will be able to get put into practice for the ratepayers.

MR. SCHEER: Thank you very much.

And a round of applause for the panelists.

(Pause In Proceedings)

MR. SCHEER: Very important, very good discussion and much appreciated.

So in the spirit of moving right along, if I could ask the Department of Energy staff to come on up and take a seat at the table here, we're going to move

into our open microphone, open public comment phase.

(Pause In Proceedings)

MR. SCHEER: This is the way this process is going to work. It's a little bit different.

Each of the speakers or public commenters are going to have three minutes to offer their remarks and we will listen and make note of them.

But please recognize that all of the people who come up to comment and then any of you or anybody else can send comments via e-mail to the Department of Energy. And the e-mail address for that is QER comments, one word, QER comments, at HU.DOE.gov.

So if for some reason I have to cut you off, and I apologize in advance, three minutes, and I'm told I just have to cut people off. That's how we'll proceed. There's the light system here. So you can take a look at that. A minute.

Then when you registered to come in, you had the opportunity to check a box for yes, no, yes, no, if you wanted to speak.

So I'm just going to go down this list in order.

If people did not sign up but still wish to say something, we'll be here for as long as you want to be here, except we have to be out of here in ten

minutes. No, I'm just joking.

So with that, Jerald Katch, if you're still here.

MR. KATCH: I am.

MR. SCHEER: If you'd identify yourself and spell your name. And then your clock will run on your three minutes.

MR. KATCH: Sure. My name is Jerald Katch, J-E-R-A-L-D, K-A-T-C-H.

I am an educator and associated with Environmental Rhode Island, Cranston, Rhode Island. And it's really a comment and a question.

I've been disappointed in the decades since I've been involved with starting with first Earth Day because there's been so little education in the schools, public and private, about the seriousness of the climate crisis.

It's clearly a crisis. I think a lot of people agree with that. But we don't see very much in the way of consistent education. We educate for a lot of areas, but not for that.

I was wondering if possibly Commissioner Gold had some thoughts about how we might integrate our educational system with your commission -- I mean, your system to develop a much stronger educational

policy that is for all of our kids.

MR. SCHEER: Excellent question. You'll have to catch Commissioner Gold on the margins outside.

This is your chance to offer public comment.

MR. KATCH: Okay. Well, that's my comment.

Thank you.

MR. SCHEER: Thank you very much.

Next is Rob Thornton.

MR. THORNTON: Good morning. Rob Thornton, T-H-O-R-N-T-O-N.

I'm the CEO of the International District Energy Association.

The last QER, the executive summary, the very first page cited inefficiency of our central power plants, 32 percent efficiency, as really the gorilla in the room that we're wasting two-thirds of the fuel that goes into our power stations as waste heat.

In fact, 36 percent of all the energy consumed in the U.S. is wasted as heat.

We have a better solution. The case in point is Brayton Power Plant where the secretary grew up.

For 50 years, since 1964, it has been wasting 47 trillion BTUs per year on average into

Mount Hope Bay. The last owners just invested $580 million in cooling towers. So instead of wasting it into the bay, they're wasting it into the sky.

If this were Denmark or Germany or Sweden, we would be putting that heat in a pipe and using it to heat the cities instead of wasting $400 million a year in useful heat.

Now, just up the road where the secretary spent a lot of time at Kendall Station near MIT, they actually have also been wasting heat in the Charles River. And in order to comply, a power plant investor was to put a pipe between the plant and Downtown Boston. So instead of heating the Charles, now they're heating Mass. General Hospital and 150 buildings in Downtown Boston.

The efficiency gains on this are traumatic. The resiliency gains are dramatic. But this pipe has the equivalent emissions reduction of 600 football fields of (inaudible).

So the low-hanging fruit is our generating fleet, making it more efficient, using the heat, and it can be done. It is being done and that will also drive resiliency.

I see a green light, but -- so with Sandy, we really -- the power plants that stood up to Sandy

were district heating, combining power plants at Princeton, Co-op City.

So I would argue the QER should take a very hard look at local infrastructure like district energy, combined heat and power.

Thank you.

MR. SCHEER: Thank you very much.

Next on our list is Scott Gustafson. Scott, are you in the room?

MR. GUSTAFSON: It's Scott G-U-S-T-A-F-S-O-N.

I am the regional organizing coordinator for the Laborers' International Union of North America; heavily involved in a lot of energy initiatives.

Colin, as you know, weatherization, our union was the lead union with the Opti Home Alliance and a lot of those programs that the administration put out in 2008.

During the economic recession, I don't know if there was -- while we talked about jobs, I don't know if there was a work force that was hurt worse than construction.

And I'd like to -- if you're going to -- this was a fantastic, fantastic discussion today. I've been going to meetings every night. I've got

three this week with the Kinder Morgan project, which is a major pipeline running through -- hopefully going to run through northern Massachusetts.

We support those jobs. They're very, very good family supporting jobs. Much like the project that we built in Maine.

I heard Anthony Buxton talk about what was going on with the paper mills. Well, I think that we have an opportunity to create more jobs and more economic benefit for this entire region if we support -- and we support all energy infrastructure, certainly not just natural gas.

But there's a lot of propaganda, a lot of rhetoric and a lot of misinformation that's put out there at a lot of these meetings.

So I don't know where I might be able to find more information so that I can present the truth at a lot of these public meetings, but that project that we just built in Maine, the Kennebac Valley, 80-mile pipeline, we were able to train and put to work 300 laborers on that project.

Now, they may have been temporary jobs, but those workers are all well-trained guys now going to build out the new distribution infrastructure throughout the state of Maine.

We can continue to do that. We have two of the best training centers in the whole country right here in Hopkinton, Mass., Pomfret, Connecticut. We're connected with Helmets and Hard Hats and a lot of the other programs for returning veterans.

So thank you very much. This has been very informative. An excellent meeting. And I'm looking forward to more of them in the future.

MR. SCHEER: Thank you very much.

I was just reminded that you can send in comments to the e-mail address: QER comments, one word, at HU.DOE.gov.

Thank you for those comments. And we'll move on.

Our next person is Jeffrey Petrash.

Are you here?

MR. PETRASH: Yes, sir.

Good morning. I'm Jeffrey Petrash from the National Propane Gas Association. P-E-T-R-A-S-H.

As many of you and your colleagues know, we in the propane industry had a challenging winter, and we appreciated the opportunity to work with you as partners in getting through it and serving consumer needs.

The QER process is really quite timely for

us, because the propane situation, both in New England and in the Midwest in particular, was almost entirely an infrastructure problem.

As my colleagues mentioned this morning on the panel, there is a huge issue with regard to propane storage, both primary, secondary and tertiary. NIMBY issues are huge there. But the infrastructure issues go beyond that.

To rail -- as Joe Rose mentioned, rail congestion has been a particular issue. We plan to be with you in North Dakota to talk about that where it's an issue.

Pipeline issues are huge. We need more pipeline pumping capacity.

We need more truck terminal off-loading capacity in order to meet consumer needs. Propane also comes by ship.

The irony of this winter is that we exported propane from Texas to Europe while having foreign ships bring foreign propane from Europe to New England, yet we have no capacity to move propane from Texas to New England or to Florida and other places.

The other point I want to mention is what I call infrastructure transparency. The way the propane pipelines are regulated today, there is a considerable

lack of transparency. No one other than pipeline knows what's moving through pipelines, in what volumes, where it's going, et cetera.

Another transparency issue, Joe Rose mentioned. We found ourselves this winter in instrument flying conditions without instruments. And we think that the EIA needs to fine-tune their data, both as to storage inventories to make it more localized and we need them to fine-tune their price data to separate propane and propylene, to collect data based on different kinds of sales, whether they're agricultural, firm contracts, spot sales.

Because as we got through this crisis this winter, there was a surprising lack of data, both on the transmission of energy and prices of energy.

And we really -- and EIA has worked with us on this. We really need to focus on that in the years ahead.

Thank you very much.

MR. SCHEER: Thank you very much. You stayed within your limit just perfectly. You set a high bar.

Chris Rine. Are you in the room, Chris?

Moving right along. I'm not sure about this name, but Greg Gerritt.

MR. GERRITT: Gerritt.

MR. SCHEER: I'm sorry about that.

MR. GERRITT: Greg Gerritt from Prosperity for RI.com. G-E-R-R-I-T-T.

I have a long list here. I'll try -- I'll stop at three minutes.

Fracking. So much of your process is dependent on fracking. And if the people of the United States stop fracking, then you're wasting all your money with all of these pipeline upgrades.

And, you know, the resistance is growing. And I think the Department of Energy needs to understand that that resistance will continue to grow. So I would not bet the farm on fracking.

HydroQuebec. HydroQuebec is part of 500 years of genocide. It is the killing of the forest people and the destroying of their culture that goes on -- you know, here in New England we started with the great swamp massacre. But HydroQuebec is removing people from the land.

And this is the same kind of thing that the energy industry is continuing to do all over the world. You've got this in Peru, in Colombia, Brazil, all of these places that you are -- basically, if you think you want to do this, and it's all genocide

based. You know, you get rid of the forest people so you can steal their resources.

The American government does it, so we figure everybody else is going to do it.

Full cost accounting. We do not count -- you know, when we grow the GDP, we do not take into account the cost of growing the GDP. And we just keep adding -- we add -- when you have been damaged from something like Sandy, we add that to GDP rather than subtracting it from GDP.

If we started to actually do full cost accounting, we would find that most of what we're calling growth is uneconomic growth as Herman Dailey refers to it.

Let's see.

Biofuels. I just saw another article today that says biofuels are less useful in terms of carbon reduction than even burning gasoline. So I don't know how good that is, but you should all think really carefully about that.

Thank you.

MR. SCHEER: Thank you very much.

Lisa Petry.

MS. PETRY: Hi, I'm Lisa Petry. I'm a stay-at-home mom and concerned citizen.

Twenty years from now it won't matter what the price of natural gas was in 2014, 2017 or 2020. The only thing that will matter is whether or not we've avoided a catastrophic global warming.

I'm sorry. I get a little emotional sometimes.

MR. SCHEER: That's okay.

MS. PETRY: But I'll try to stay fluent.

Natural gas is a false solution to the climate crisis. Yes, it burns 50 percent cleaner than coal, but that's very misleading because it leaves out the serious problem of methane leaks in the extraction and the transport phase.

Methane is an extremely potent greenhouse gas. It's about 23 times as potent as carbon dioxide over a 100-year time frame, but it's much worse, 80 to 100 times as potent, over a 10- to 20-year time frame.

And researchers at Cornell University have found that overall -- overall greenhouse gas footprint of fracked gas, which is what we're talking about with the expansion of the Algonquin pipeline, is worse than coal when you look over a 20-year time frame.

It's that next 10 to 20 years that will be absolutely pivotal if we want to avoid catastrophic climate change.

And another problem with relying on natural gas as a bridge fuel, as already suggested earlier, is the idea that we can drastically grow a for-profit industry like natural gas and then expect it to simply step aside when we're ready to make the transition to renewable energy.

Excuse me. I'm really nervous.

MR. SCHEER: That's okay. Take your time. Up to three minutes, of course.

MS. PETRY: I'm really happy to have the opportunity to speak. So I'll try to just stick to my message.

To see how realistic this is, we only need to look at the track record of the oil industry. Far from stepping aside and making way for renewable energy, the oil industry has spent millions of dollars blocking progress from climate change. The more we invest in the natural gas industry, the more we're feeding the beast that we ultimately need to subdue if we want to stop global warming.

In fact, the ready availability of cheap natural gas is already slowing the growth of renewable energy by providing the cheaper alternative that's perceived as clean.

By the way, this is only cheaper, as Greg

indicated, if we exclude all the externalized costs in terms of healthcare costs, lost productivity and environmental destruction, et cetera.

We also need to remember that whenever we build new infrastructure or expand existing infrastructure, we're choosing our energy future for the next 30 to 50 years.

The IEA --

MR. SCHEER: I'm sorry, Lisa, but that's it.

MS. PETRY: Please, one more thing.

The IEA, (inaudible) radical environmental group, warned in 2011 that anything built now from now on that produces carbon will continue to do so for decades. And this blocking effect will be the single factor most likely to produce irreversible climate change.

We can meet all of our energy -- green energy. I have --

MR. SCHEER: Thank you very much.

MS. PETRY: I have here a plan that was --

MR. SCHEER: Please, you can submit it by e-mail.

MS. PETRY: -- with clean energy.

MR. SCHEER: But your time is up.

I'm sorry. I'm sorry.

MS. PETRY: We can do it here in Rhode Island.

MR. SCHEER: Thank you very much.

Wendy Luck. Finally. Because you were the first at the mic.

MS. LUCK: Hi, there. Can you all hear me? I'm Wendy Luck.

I am the Ocean State Clean Cities coordinator hosted at the University of Rhode Island Outreach Center.

And first, I did want to -- something that hasn't been mentioned today in terms of one of our achievements with infrastructure is the 50 electric charging station that was funded through the Office of Energy Resources.

But the truth is, one of our challenges is that we need more infrastructure for alternative fuels and transportation. The Clean Cities Program needs further support.

I am one of almost 100 coalitions nationwide. And to have a project like that, it takes resources. If you want to make us energy independent, wean us off of farm petroleum, we need resources to build the infrastructure, whether -- for any of those alternatives fuels.

None of these industries are going to flourish whether you talk about biofuels or natural gas or electric vehicles or hydrogen if you don't put resources there, for deployment, very much into vehicle deployment and infrastructure deployment.

So that's it. That's just the comments I wanted to make.

So thank you.

MR. SCHEER: Thank you very much.

I apologize in advance if I don't get this name right, but Gary Sifoski (phonetic)? Are you in the room. He's not here. Then he wasn't embarrassed by my pronunciation.

Next, Art Handy.

MR. HANDY: I won't take three minutes probably.

Art Handy, state representative from Cranston here in Rhode Island.

And I also work with the American Lung Association of the Northeast.

Reflecting back on what Mr. McCourt was saying about the idea of picking winners and losers, I think the more we can look to bring a lot of the costs that we're talking about that are out there -- and some of the other speakers I think also referred to it

-- the public health impact, but the flooding impact as well, the other kinds of pieces of these equations, as we're looking at our energy infrastructure, making our choices around becoming more resilient and prepared for climate change.

And the fundamental impact's obvious in the state of Rhode Island, very high asthma rates, but also with relative very limited ability to control a lot of things, like the ozone predecessors, the constituent chemicals that are going to come over from energy production out in the Midwest and so forth. I think it's really vital.

And that's why, again, I appreciate the Department of Energy looking at trying to find ways to cooperate.

But I would urge you, as an agency, I know obviously there's some limitations. You have to look for congressional approval for certain choices, many choices that are maybe not available to you. But look for those opportunities. I think they are there.

The EPI was just looking at carbon rules around the new coal plants and new -- other new energy sources.

Look at ways that you guys can work together trying to find ways to bring in those external costs

in benefits into these projects, whether it's a renewable project, an avoided project through energy efficiency or, again, maybe a completely avoided project in some cases as well.

So, again, I think the public health benefits are only one of those many things. But the climate impacts, a lot of things are going to be fundamentally important to us in the long term, and I would urge everyone to work together on that.

Thank you.

MR. SCHEER: Thank you very much.

Next, William Garrett.

MR. GARRETT: Yes. Hi. I'm William Garrett. I'm the president of American Hydrogen Northeast. We're a research development and applications group focused on providing proven technologies to make a transition from depletable energy to highly efficient and of course, clean renewables.

I'm going to be skipping through this because I have a longer piece, so I'll try to cut it down.

The IPCC and the IEA last year produced three very important documents. They primarily say that we are nowhere near on track for leading the 2

degree increase in global temperatures. They also point out that we are experiencing the impact of global warming now, and that most of the damaging portion of what happens between now and the end of the century will happen in the first half of the century.

Very different things. A very different look than what we've been used to.

They propose a 450 policy, called a 450 policy, and they have a new policy scenario. But each and every report stresses that these things are unlikely to happen. They describe them as extremely challenging and have a lot of reasons why they say that.

So we're looking to market that is all; we're looking at other ways to find to cut global warming emissions.

To understand this, 70 percent of all the oil in the world goes through an internal combustion engine, the ones that are out there. There's over a billion of them. They run every day.

To give you an idea what this is, IEA predicts oil consumption rising from -- rising to 4,666,000,000 U.S. gallons per day. That comes to 1,701,630,000,000 U.S. gallons per year. And, of course, these engines and the oil market are the

second largest contributor to global warming emissions. And we largely ignore focusing on greater efficiency in this market. And we largely ignore really opening the market to a broad range of renewable and other fuels.

So the technology significantly increased the efficiency over a billion ICEs while cleaning the emissions, opening them to most all clean renewable fuels, including hydrogen or renewable hydrogen. That's here and now.

Shell Oil in the 2001 futures book predicts the rebound of the venerable --

MR. SCHEER: Time is up.

MR. GARRETT: -- stating that --

MR. SCHEER: Finish the --

MR. GARRETT: -- at 100 miles per gallon. That's Shell Oil. That's not us or anybody else.

And in a very quick conclusion, this market represents a great opportunity for us to move in a different direction and make a major impact on cutting global warming emissions.

MR. SCHEER: Thank you very much.

MR. GARRETT: -- And --

MR. SCHEER: Thank you.

That's all the names I have on my list.

Is there anybody else who would like to make a comment? If you just form a line, and we'll just take you one at a time.

Remember to state your name and affiliation.

Three minutes.

MR. MEYERS: I'm Charlie Meyers. I'm the president of the Massachusetts Hydrogen Coalition, the chairman of the Massachusetts Fuel Cell Electric Vehicle Working Group and a founding member of the H2 U.S.A. Program.

As we start looking around the United States, we start saying we're going to shift transportation onto the grid so that we can clean up the grid easier than we can. Transportation is all that moves through in the process. But in doing so, we're now making transportation something that we would as a component to the grid.

So I don't see it being discussed widely as we make zero emission electric vehicles part of the grid on that. It's going to be in the Northeast. It will impact natural gas. It will impact the other demands on it.

The energy efficiency gains that we make will be offset by -- to some degree the plug-in electric vehicles, the hydrogen fuel cell electric

vehicles.

We can make hydrogen on a site-based approach. We don't have to have it as distributed on that.

So there's a lot of options that we have for hydrogen on that.

The vehicles that we're putting on can serve an energy storage play. They can be vehicle to grid. They can be energy storage when you come to the site-based hydrogen generation.

So I'd like to echo what Wendy's comments were earlier and suggest that we spend more money on the infrastructure side and the research and the efficiencies associated with the infrastructure because they're going to be playing a greater dependency role on the grid and interfacing with it for the fuel demands on that.

Thank you very much.

MR. SCHEER: Thank you very much.

Next?

MS. RYAN: Hi. My name is Bridget Ryan. I am with Emerald Cities Providence.

I just wanted to emphasize the importance of energy efficiency in these discussions and in the energy plan with -- it's been stated 70 percent of

energy is being used by existing buildings.

There's a huge opportunity to address the supply and demand issues and delivery and generation issues of energy if we actually reduce significantly the amount that we use. And that's actually something that we have the ability to do. We just need to do it better.

I think there's great opportunities for greater economic impacts in quality job creation and especially addressing equity issues within our communities, creating jobs for most needy of our communities, the people who need the better wage paying jobs to support families.

I also agree with Commissioner Gold's comments about public/private partnerships. I think there's huge opportunities there.

And I would like to also stress that line with that, we need to have better interior departmental collaboration and cooperation to address energy efficiency.

So energy efficiency shouldn't just be seen in its own silo, that all -- many of the programs, community programs, government programs need to include energy efficiency.

So for instance, just in the production of

housing, when Dave Caldwell was talking the production of affordable housing, those policies need to have a greater emphasis on energy efficiency and more collaboration between all of the agencies.

Thank you very much.

MR. SCHEER: Thank you very much.

Next?

MR. CURRY: Yes. My name is Christopher Curry from Pascoag, Rhode Island.

I want to comment about the remark that was made that the Smart Grids that are being developed are going to depend on wireless technology.

That was pointed out that this wireless technology is vulnerable to hacking. And they really mess with our system if a foreign government or a hacker of some kind decides to start playing with that system.

But there's also another threat to relying so much on a wireless technology and that is sun spots. Especially if there's sun spots in such a way that they directly go toward us as opposed to elsewhere. The sun spots can wipe out the satellites that you're relying on to -- for wireless technology.

Therefore, I would hope that the Smart Grids that are being developed would be a combination of

wireless technology and wired technology designed to operate either way.

Thank you.

MR. SCHEER: Thank you very much.

Just a reminder that if you would like to submit comments in writing, you can do so and send them to -- by e-mail to the Department of Energy at QER comments, one word, at HU.DOE.gov.

Does anybody else want to offer public comment?

(Pause In Proceedings)

MR. SCHEER: I guess hearing none, with that we are adjourned.

Thank you so much.

(Proceedings concluded at 12:16 p.m.)

C E R T I F I C A T E

I, Darlene M. Coppola, Registered Merit Reporter, Certified Realtime Reporter, do hereby certify that the foregoing transcript, Volume I, is a true and accurate transcription of my stenographic notes taken on April 21, 2014.

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Darlene M. Coppola
Registered Merit Reporter
Certified Realtime Reporter

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