

EIA Energy Conferences & Presentations, April 6, 2010

Session 1: “U.S. Climate Change Policy: What’s Next After Copenhagen?”

Speakers:

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[Note: Recorders did not pick up introduction of panel (see biographies for details on the panelists) or introduction of session.]

Richard: I want to welcome everybody to the first breakout session of the conference. I'm Richard Newell, Administrator of the US Energy Information Administration. During this panel, we're going to focus discussion and focus our attention on US climate change policy. We held a similar panel discussion last year, and we're revisiting the topic because a lot has happened, as you know, over the last 12 months. Nothing could be more central to the interface of energy, the economy, and the environment than the climate change issue.

Last summer, the House of Representatives passed H.R.2454, the Clean Energy – American Clean Energy and Security Act of 2009, otherwise frequently referred to as the Waxman-Markey Bill. As many of you may be familiar, EIA was asked to and did complete an analysis of that, which is available on our website. We looked at six different analysis cases to help provide a clear picture of the sensitivities of the timing of the impacts of the bill to the timing of technology development and deployment. I expect

we may be asked to do additional analysis depending upon how the legislation goes over the coming weeks and months on the hill.

In December, nations met in Copenhagen to discuss international climate change policy for post 2012. Also in December, EPA issued its financial endangerment finding that greenhouse gases in the atmosphere threatened public health and welfare of current and future generations according to that finding.

Last week, the Department of Transportation and the Environmental Protection Agency released joint final rules for Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards. The rules will raise fuel economy of cars and light trucks to 35 miles per gallon by 2016.

EPA is also working on a proposed rule focused on large facilities' over 25,000 tons of greenhouse gas emissions a year, the so called Tailoring Rule, which I'm guessing Gina will talk more about. Meanwhile, in Congress, Senators Kerry, Graham, and Lieberman are working together to draft a new Energy and Climate bill in response to the House's past bill that was passed last June.

We've asked the four panelists to give us their views of where domestic regulation is moving, how US climate change policy factors into the international scene, what is the perspective of business on climate change policy, and what are the political and practical prospects for different scenarios looking forward.

Our panelists represent views from both inside and outside of the Obama administration that include Joe Aldy, Special Assistant to the President for Energy and Environment at the White House National Economic Council and the Office of Energy and Climate Change; Gina McCarthy, Assistant Administrator of the Office of Air and Radiation at the US Environmental Protection Agency; Karen Harbert, President and Chief Executive Officer of the Institute for 21st Century Energy at the US Chamber of Commerce; and Jason Grumet, Founder and President of the Bipartisan Policy Center,

also closely affiliated with the National Commission on Energy Policy, one of its flagship enterprises.

Their bios can be found in the conference program, so I'll not spend much time highlighting their many accomplishments because I anticipate the discussion will be much livelier.

So, each of the panelists will speak for about 10 minutes to present their thoughts on the direction of Climate Change Policy where it's moving. And after the prepared remarks, I'll help guide the discussion between the panelists based, in part, on the questions that you can give. Somebody will be circulating cards as we did at the plenary session. So, we invite you to give your input to the discussion, jot those down, and I will post those to the panelists. With that me...with that, please join me in welcoming Joe Aldy to the conference.

Joe: Thank you, Richard. It's a real pleasure to be here to participate on this panel and participate in this conference. I'm a big fan of the EIA. Those who work at EIA may think I'm too big of a fan since I am very frequently calling and e-mailing with request of data analysis and insights. But I think, as many of you know, that the staffs of the EIA do excellent work and do great service to inform, I think, the policy debate here in Washington as well as benefiting those who are consuming the information and analysis beyond the Beltway.

I'm going to spend a few minutes reflecting on International Climate Policy in 2009 with an emphasis on the Copenhagen talks to help frame the discussion here today about and next steps in US Climate Policy. I think it's very fair to say that expectations in 2009, in International Climate Policy, were very high. I think it's clear that with President Obama taking office, the charge he put before his staff was to go out and be as productive and proactive as possible and for as many for as possible to bring change in delivering our energy and climate agenda. And so I think it would be useful,

before getting into the context of the UN climate talks, to note a variety of the activities that the President undertook and that we, on his behalf, undertook last year.

First in March of last year, the President launched the major economy's forum. And as you know, in L'Aquila in July, you had a declaration among the leaders of the major economies in both the developed and developing world really leading, I think, creating a momentum leading us towards Copenhagen as well as identifying a global technology partnership that we're continuing to implement.

Second in the fall, you had the President, at both the G-20 Summit in Pittsburgh and the APEC Summit in Singapore, secure an agreement to face down fossil fuel subsidies in developing countries around the world. We think this can actually play a very important role in helping some of the key emerging economies begin that transition towards low-carbon economic development.

The President — in a number of bilateral efforts with key countries, both are partners in the hemisphere and Canada and Mexico, as well as major emerging economies like China and India — initiated energy and climate partnerships as ways to help build our ties in developing new technologies and identifying best ways to deploy those technologies.

Last spring, through the Arctic Council, the United States led an effort to focus on short-live pollutants including black soot...excuse me, black carbons such as soot, and identify ways in which we can actually reduce emissions of these pollutants that may help slow the warming in the far north.

And then, the final I noticed last year, you had a joint proposal by the United States, Canada, and Mexico to face down hydrofluorocarbons, a very potent greenhouse gases HFCS under the Montreal Protocol, as a way to try to jump start efforts to tackle climate change.

So, there's effort across all these different fronts that I think illustrates both a comprehensive effort and a dedication by the Administration to try to tackle climate

change in the international space. And I think that's important because we are able to and these other form [sp?] make a lot of progress, where there are times last year in the UN Climate Process where progress was limited.

As the formal negotiations began in March of last year and went through the bond talks [sp?] in June and throughout the fall, it is becoming more and more clear that countries were far apart and we're not making much progress in finding agreement. I think that's why, by early fall, you had Prime Minister Rasmussen of Denmark identifying the need for a politically-binding agreement as an alternative to a legally-binding agreement in the Copenhagen talks.

Now, once we got to Copenhagen, I think it's fair to say that negotiations lacked much rhythm. I think that's a diplomatic way of saying, "It was very difficult." I think as for those who were there, you know that it was actually very cold and very dark. I think it's also fair to say the food in the convention center wasn't that good with the exception of French hot dogs, which I had never appreciated until about three straight long nights there at the end of the negotiations.

I think it's also fair to say though that while we had all these sort of fits and starts with the negotiations over the first 10 days or so, you had, in the last few days, as heads of state began to arrive in Copenhagen, an effort by the Danes to convene us, sort of what we call Friends of The Chair Process, which had about 30 countries in the room mostly represented by heads of state. In the case of United States, first, by Secretary Clinton and then, upon his arrival, by the President.

And I think it's important to look at the product that this Friends of The Chair produced, which is actually the Copenhagen Accord. First you had major...every major economy in the room; you had every major negotiating block represented in that room. The text drew from a variety of texts that countries had already agreed to in previous forums such as the Major Economies Forum. And I think it's important to recognize that this did represent the will of Heads of State of these countries.

So, a few comments about the outcome of this effort despite a rather bumpy ride it took in the plenary in Copenhagen that you maybe there experienced, although I hope for you sake you didn't, or may have read about in reviewing the outcome of Copenhagen. But the Accord, I think, actually makes several very important steps forward.

First, we have the quantification of the ultimate objective, the framework convention that is the Climate Tree that governs how we're trying to address climate change. For the first time, we've actually said we need to limit warming below 2 degrees Celsius, and I think that is a very first...a very good first step in order to define and inform not just near-term mitigation efforts but to guide the kinds of mitigation efforts we'll have to take over the long term.

Second on mitigation, the Accord provides for both developed and major developing countries to list their specific actions and targets to cut their emissions. This is the first time in international agreement that we actually have developing countries putting forward their mitigation efforts.

Third, it makes very important progress on transparency by saying that the implementation of developing country mitigation actions will need to be subject to international review. I mean, this matters a lot because we need to have the confidence that countries are actually delivering on what they say they're going to do and that will enable us to have, I think, more confidence moving forward and taking the next steps to confront climate change.

Fourth, the Accord includes, I would say, landmark financing provisions from the sort of Fast Start Package of resources from the developed world on the order of approaching \$30 billion over the 2010 to 2012 period to a goal of jointly mobilizing up to a \$100 billion by 2020 in the context of a fully and meaningfully implemented Accord. And I think there are additional efforts to try to operationalize these goals both through a

high level group that just met last week to identify ways of implementing the finance as well as ways in trying to design additional mechanisms for delivering the finance.

Finally, the Accord calls for the establishment of a technology mechanism to accelerate technology development as well as the dissemination and incentives for forest protection.

So we're more than three months after Copenhagen and I think it's important to assess, you know, what we can say about the Accord and the progress today. We have more than 150 countries that have effectively joined the Accord and the jargon of the Accord that means that they have associated with it. More than half of those, more than 70 countries, have actually put forward mitigation targets, actions, and plans to reduce their greenhouse gas emissions.

These 70 plus countries actually represent more than 86% of global fossil CO₂ emissions in 2008. We've already seen ad hoc meetings of donors to address finance issues. We've seen countries convening meetings to discuss deforestation issues. Just last week, we had the UN launch a high-level panel on climate finance, and domestically through both enacting our FY10 in December and proposing our FY11 budget, we've been moving forward in our plans and how we'll deliver on our Fast Start Financing.

Now some have criticized the Accord for what it's not. It's not a legally-binding agreement. But I think what's important is the fact that we're actually seeing action happening now, that the whole point of taking a political agreement such as the Copenhagen Accord was to actually take action now and not let the nature of negotiations slow down, a kind of progress we can take in the near term.

I think a couple of things that are important. The Accord doubles the number of countries that are actually listing mitigation actions than those under Kyoto that have targets. In covering 86% of global CO₂ emissions, it vastly exceeds the 29% of global CO₂ emissions by those that have targets under Kyoto Protocol. Only five nations had

actually ratified Kyoto within the first year of the Kyoto Conference, and then other countries with emission targets under Kyoto had ratified the agreement within three years of the Kyoto Conference. There's an incredible amount of follow-up effort to try to figure out the implementation of Kyoto that actually, I think, slowed down some of that initial progress. I think, by the nature of this kind of agreement that reflects the will of heads of state, we're actually seeing action occurring now, and we're seeing the continued drive and momentum moving forward this year and a lot of the key elements of implementation.

So moving forward when we think about where the international community is, there's clearly...when we talk to our friends in other countries, they ask us how we're doing with our domestic legislation. That, I think, is going to be critical when we look at the implementation of the Copenhagen Accord that we make progress domestically in delivering on domestic energy and climate legislation.

The President has continued to call for comprehensive legislation that will put a price on carbon throughout the economy, and I think it's important to note that it's very hard to imagine that the major emerging economies will actually move forward and implement everything they've said they'll do if they look over to the United States and see that we are failing until about...to what we have actually said we'll do.

I think it's also important to note that what the Copenhagen Accord did is that actually provided a means by which we're going to be coordinating efforts across countries but in no way does it dictate to Congress what it can or cannot do in terms of domestic legislation.

So, I think it is important to recognize then that. as we work with Congress, there'll be these opportunities to actually develop and implement domestic policy that lives up to the objectives of the Copenhagen Accord, but it's not in any way constrained by the international negotiations.

So, with this international frame, let me now defer to my fellow panelists who will discuss some more of the details of domestic policy. I look forward to our discussion after that. Thank you.

Richard: Thank you Joe. Next, we will have Gina McCarthy, VPA.

Gina: Good morning, everybody.

Richard: Good morning, Gina.

Gina: So, everybody's still awake? Are you having an exciting time? All right, I didn't mean anything by that Joe, I'm sorry.

Joe: Don't worry, Gina.

Gina: I was just checking because they weren't saying much. First of all, I want to congratulate Richard on his focus in not gloating over the win last night. I can imagine that you didn't. You should have, because as a Red Sox fan, I spent the entire day yesterday gloating over the season opener with all the Yankees fans that I could find, but congratulations on the win. It was quite a game. I know you had nothing to do with it, but you still must be gloating, correct? Or maybe you did. I don't know that for sure.

I wanted to follow up on what Joe said and give you a sense. The most exciting thing I think about Copenhagen...well, there were a lot of lessons that I learned. Number one is that you can get more easily killed by speeding bicycles than by cars. That was quite an amazing thing for me. But the most important lesson I think I learned was just how actively engaged the President was. So, you can talk about the outcome of Copenhagen and whether it made anybody's fulfilled everybody's expectations, but to me, what I did not expect was such an incredible active engagement by the President of the United States. And I think it was a compelling show of this Administration's commitment to climate change and clean energy. And so I think Joe, for all of his work, to pull that together, but I do think that it sent waves into the Agency's understanding of just how seriously we have to work on these issues and just how much this

Administration is going to support our efforts if those efforts are done well and consistent with the direction that the Administration wants to have.

So, it's very exciting for us, and that was my major lesson that I took away from it. But in terms of what we needed to do when we returned home, I think I would begin by saying that the Administrator well understands, as does the President, that the direction the Administration wants to head is to have comprehensive legislation. That is the solution to both climate change and our interest in moving forward with the clean energy economy.

But in the meantime the Clean Air Act requires us to take actions. We're going to take those actions, and we're going to do it in a way that it's first and foremost sensible, but, secondly, that it's entirely consistent with the direction in which future climate clean energy legislation should, and we hope will, be heading very shortly.

So, let's talk about, first of all, the regulations that are underway, and let's begin by looking at what are the principles we're using to guide the decisions we're making because I want to again reiterate the fact that we want this to be done well. We understand that climate change issues are marathon issues. They are not sprints.

We also understand that the clean energy future really is not simply about low carbon, but it's also understanding that under the Clean Air Act, as well as other laws that are being implemented by EPA, we have obligations to look at how a clean energy future looks from the perspective of clean air, from the perspective of clean water, from our hazardous waste rules, our circular [sp?] rules. We need to look comprehensively at how we're using those rules as well to dovetail with our interest in addressing climate and moving towards a clean energy economy. And that's really the challenge that we have before us.

So as we're looking at these rules, let me articulate just a few principles. First of all, I've mentioned that they have to make common sense. But clearly they have to be based on sound science, what the Clean Air Act looks at to be legally defensible, and

how we can move our issues forward in the correct direction. We have to make sure that we're impacting the right sources. We have to make sure that they're deliberately faced in. As I've said before, we're in a marathon not a sprint. I've mentioned before that they need to be consistent with the direction of legislation. And lastly, they have to be sensitive to economic concerns.

These rules, any rules that move forward, have to be implemented, and they have to understand what the benefits and co-benefits are, so that we could understand how we interweave our legal responsibilities correctly to set the right stage for investments in this clean energy future.

Now, I know that Richard already mentioned the endangerment finding. I won't dwell on that. Suffice it to say that the endangerment finding resulted in a — what I considered to be a — historic document, which is the most comprehensive compilation of science and data. And I think that it is the staffs that are to be commended across the United States and the agencies that were involved in terms of pulling that together.

But the most important thing about the endangerment finding at least last week, and it remains this week, is that the endangerment finding was the fundamental underpinning for the light-duty vehicle rule, which was announced last week and that is the Clean Car Program.

Now, I will tell you that we can talk a lot about what that means in terms of energy independence, reductions on our dependence on foreign fuel, about the efficiency gains, about what it means in terms of savings for consumers. But I think one of the most important things that we don't talk about that I'd like to focus on is the fact that it does two things.

One, it rewards innovation because the President has been very clear that in order to meet our climate...clean energy future and address climate change, it will require investments in innovation, sparking new ideas and new technologies moving forward. It clearly does that in that role.

But secondly, it shows that we can move forward to reduce greenhouse gases in a way that a sector actually finds consistent with the way in which they want to grow the sector from a business perspective. It is exactly the kind of running in this marathon that we want to show is possible and is practical and that we can move forward on.

So, those are the principles that we are looking at. That's the first sign that the Administration has sent that we get the idea that we need to address climate and we can do it in a way that makes sense from an economic perspective. And frankly, it shows one other principle which I think is extremely important that we look at doing that sector wide, that we look at what we're talking about for a sector in moving that forward. So, we send the right business signals, so that investments can follow.

Now, the next thing I want to mention is that last week or it was two weeks ago, I testified in an EPW hearing where we talked about an analysis that we did for Senator Kerry, and that analysis was looking at the emission reductions in oil savings that we could achieve across the transportation sector all throughout the sector between now and 2030.

I want to highlight that for you because the actual data is on EPA's website. But the most important thing is for you to recognize that in addition to moving forward with the light-duty vehicle rule, we have seven additional petitions that have to do with the transportation sector. And what that analysis did was it didn't do a regulatory look at the reductions that we intended to achieve. It was more a scoping exercise that took a look at what reductions we could achieve on the basis of known technologies, operational improvements, and travel efficiencies.

The actual results of what we could achieve are pretty staggering. There are tremendous opportunities to move forward again throughout the transportation sector in a way that is not dissimilar from the light-duty vehicle rule in terms of challenging as to look at what's already available, what innovations have already been brought to market,

how do we move those into the market place effectively and achieve reductions in a way that make economic sense.

Now probably it is not lost on anybody that we're not just looking at vehicles and we're not just looking at engines but we're looking at fuels as well. And we just have implemented the renewable fuel standard in its second reincarnation that is going to be an ongoing venture. I think the most important part of that rule — the issue that added tremendous complexity to the job...was the groundbreaking life cycle analysis that we had to achieve.

It was, I think, another proud moment actually of EPA in terms of moving forward with the science and the modeling that's necessary to do a good job at looking at the greenhouse gas footprints associated with new fuels and how we move those into the economy and what's worth it and what isn't and what's going to the other *[inaudible]* reductions and how do we do it in a way that make sense.

Now moving forward, now that we've moved forward with the light-duty vehicle rule, some of you who are dealing with stationary sources, it may not have been lost to you that we put out a small decision prior to that. It wasn't a rule but it was finalization of a policy after going through a public comment period. We lovingly call it the Johnson Memo because Jackson doesn't want it. No, we call it the Johnson Memo because it re-looked at issues that Steve Johnson laid out in terms of when greenhouse gases become regulated under the Clean Air Act.

The result of that rule was to say that when the light duty vehicle rule comes in, it doesn't mean that stationary resources are immediately subject to PSD and Title V requirements. What it says is that they won't be subject to PSD and Title V requirements for permitting until January 2nd of next year, and that is the date when engines will begin to be certified under the new 2012 standards.

Now, that's not the last step we're going to take. As you may know, we're also looking at something that we call the PSD Tailoring Rule. And that is basically a rule

that will identify how we are going to face in permitting requirements on the stationary side that are actually triggered by the Clean Air Act once greenhouse gas has become regulated.

The Administrator has already sent some signals in terms of where we're heading on that rule. We expect that rule to be done very shortly. Hopefully, by the end of the month but it could take a little longer than that. But we know people are anxiously awaiting it. I'm actually anxiously trying to deliver it because I think it's a tremendously deliberative document that will make sense to people when they read it. That will take some of the fear away about what permitting requirements are going to be required when, but the administrators already made it clear that when we kick in January, we're going to look at greenhouse gases only when we have sources that are in the permitting process as a result of triggering criteria pollutant thresholds.

So we're going to bring in no new facilities and no new sources at that point, but we will be having to look at greenhouse gases and make determinations about how we would suggest states look at that for those sources for greenhouse gases, and then later on, she's also indicated that, later in the year at the earliest, we're going to be looking at setting thresholds for greenhouse gases by themselves, but it's going to be significantly larger than the thresholds that we had proposed.

So that rule will be coming out soon. But I think I want to end with where we started, with where I started, which is the challenge. It's not so much what we're doing on greenhouse gases frankly in EPA. But the challenge for us is where we're going in terms of our other criteria pollutant work and nontoxic works because, clearly, some of the changes that we're looking at that are required under law and under deadlines in court suits, we are looking at coming out with the series of rules that will impact stationary sources.

The challenge for us is how do we do those rules using the similar types of principles that I have outlined for a greenhouse work and how do we align that together.

Now the President, in his State of the Union address, said the nation that leads the clean energy economy will be the nation that leads the global economy.

If we...EPA wants to be part of that transition and a positive part of that transition...we need to have built in to all of those rules some foresight envision about where we expect clean energy to go and how we use our underpinning regulations to move that forward in a way that actually grows this clean energy future.

And I probably don't need to tell you how important it's going to be for us to work together to make sure that the rules that we have under way that include the transport rule include the Utility Max Rule. All of these rules will have significant challenges. They will be driving investments in upgrading of our industrial facilities in transition of our utilities to these clean energy underpinnings. And I think the last thing we need to recognize so that we're seeing more and more as we look at how we integrate these rules together so that we're sending the right investment and innovation signals: The last thing is we recognize at looking through all of the models that EIA and others have produced and that we're looking at is the significant opportunities that energy efficiency provides as well as the need to consistently invest in energy efficiency as a way to keep the cost associated with this transition down and to allow us to make the transition that the President and the Administrator is looking for.

So I think we understand our responsibility. We're going to meet those in a way that make sense. But it will be a significant challenge to weave together both what we're doing with greenhouse gases with the need that we have to move forward with under our Clean Air Act responsibilities for criteria pollutants and toxics.

But we will take that responsibility to heart. We'll continue to work with you, and hopefully we'll have strategies that make sense from everybody's perspective. Thank you.

Richard: Thank you very much, Gina. We're going to hear next from Jason...no, Karen Harbert. I get easily confused. You're last Jason. Karen, we're going to hear from Karen. It's the 21st Century at the US Chamber of Commerce. Thank you, Karen.

Karen: Well thank you, Richard, and let me thank, or let me congratulate, you first from pulling together a terrific conference and obviously, a terrific audience. But also, thank you for including the business community as part of this discussion because I do think that there is a growing realization and a bigger role for the business community in both the domestic discussion, excuse me, and the international discussions which is why we at the Chamber pulled together the first Major Economies Business Forum, which was the same 17 countries that the President pulled together to talk about climate issues.

We pulled together the 17 largest business organizations from those countries to have a real-time fact-based discussion about what the opportunities were for the business community, what the challenges were, and how we collectively would like to have a much bigger role and input into the policy-making process because, ultimately at the end of the day, that is going to be the business community's ability to continue to invest, to continue to create the jobs that we need to power our economic recovery here at home and around the world, that will ultimately either be successful in transitioning ourselves to a low-carbon economy or not.

And when you think about here at home, we need to create 20 million jobs over the next 10 years just to replace the jobs that we have lost in this recession and to account for the new people coming into the economy, coming out of college; that we need to be very, very much focused on making sure that we have a competitive environment here; but also that we are able to make those investments and create those jobs.

I think the role of the business community is important because we, at the end of the day, are really practical people. And so, I think, one of the reasons why the

discussion in Copenhagen was difficult and the discussions here at home are complex and challenging is because there is growing realization of the complexity of the transformation that people are talking about. If you think about the goal that the UN has put forward of reducing the greenhouse gas emissions 50% by 2050, well it fits nice on a bumper sticker: "50 by 2050." As you dig in and really understand the scale and scope of the transformation, it really becomes quite a different conversation.

When you think about to achieve that, we're going to have to remove from the atmosphere seven times the amount of emissions that the US produces on an annual basis. That gives one a sense of the scale of what we're talking, but how important it is going to be to understand the building blocks that will be necessary to get us there in a successful manner.

I want to talk to you just a few minutes about what the future will look like. Then I want to get into what I consider the four building blocks for success. And lastly, just to raise a couple of business concerns that I think we need to be very much concerned about. If we were able to meet the UN's goal of 50 by 2050 that means that on energy efficiency, and I agree with Gina, that is the next best source of energy and the quickest way for us to reduce our energy consumption, we would have to double the rate at which we are becoming more energy efficient every year.

We are 50% more efficient than where we were 30 years ago, but now going forward, we would have to double the rate of our energy efficiency. In the power sector by 2050, carbon-free sources would have to grow 550% by 2050. That means that 95% of the electricity generated worldwide in 2050 would have to be carbon free.

So what does that mean? Let's get some real numbers. There are nuclear; that means that we would actually have to add, at an annual rate, half of what we did when we were producing the most construction here in our country. And so that's a huge growth around the world in nuclear capacity and certainly a big growth here at home when we have not constructed a green field nuclear reactor in over 30 years. It's terrific

that we've got more than two dozen applications pending at the Nuclear Regulatory Commission. But I think Joe pointed out that or somebody pointed out in the earlier session: You know, in Japan, it takes five years to build one. In China, it takes less than five years. In France, it takes less than five years. You know, we are at a trajectory for to take 10 years and longer perhaps in this country, and that's not a sustainable way to meet the goals that we're talking about.

Renewable energy sources would have to increase 3,000 and 500% between now and 2050. That means that it would have to be renewable sources, excluding hydro, would have to be about 34% of electricity generation market. Right now, it is about 2%. So we're talking about an astronomical increase. Do we have the investment environment? Do we have the regulatory environment in place here around the world for that to happen?

And certainly by 2050, all coal plants would have to be outfitted with CCS, Carbon Capture and Storage technology as would natural gas plants. And this is a technology that we are investing heavily in. It has yet to be proven out at commercial scale, but we would have to have it in operation, fully deployed, to cover all of those generating plants.

So, the scale cannot be underestimated in the electricity sector. Likewise, it can't be underestimated in the transportation sector. By 2050, I think it's fair to say that the type of engines that we are used to today, the conventional engines, would basically be a thing of the past. And that EI or IEA — not EIA — IEA estimates that by 2050 we'd have to have a billion electric cars on the road. And certainly that is far from where we are today. So, a huge transformation, which is why I think it is critical for the business community to be at the table to give real time policy feedback about what they're going to need in place in order to make these types of changes.

So what are those changes? What are the four building blocks that I referred to you earlier? I call them the four I's — investment, innovation, infrastructure, and intellectual capital.

On innovation, we certainly don't have all of the technologies we need today to achieve the type of transformation as being talked about in policy circles. We are investing, absent stimulus package, less in energy, clean energy R&D, than we did after the Arab oil embargo. We need a commitment, a sustained commitment over time, to invest in those technologies in the innovation cycle that will allow us to transition to a low carbon future without huge economic dislocation, and we need the financing in place to actually stimulate and accelerate these technologies out into the market place. So, it's innovation.

Investment. We know to meet the energy demands and energy demand growth between now and 2030, it's going to require about \$26 trillion worth of investment. You overlay that transition to a low-carbon future. You add \$10 trillion onto that. So, we're talking \$36 trillion in worldwide investment that is needed. Well, I'm glad to say there's some good news in that but there are also some big challenges. Global investors in the first quarter of this year poured \$2 billion into green-tech investments and startups in this year. And North America got 81% of that investment. China got 4% and India, 1%. So, I think we need to be careful. We say China is leading the way. There's a lot of things that's happening here at home. But over time, we don't have the type of investment environment here that will stimulate the huge investments that are necessary.

If you think about the innovation thing one more time, for example, we don't even have an R&D tax...permanent tax credit. So, every couple of years we have to renew the R&D investment tax credit, which is signaling to the private community that we're not serious about it. We should have a permanent R&D tax credit.

Infrastructure. The third I. Part of the vernacular of the energy industry has always been NIMBY. Well NIMBY is a thing of the past. Now, we talk about banana built absolutely nothing anywhere near anyone or anything. And now it's almost "Nope, not on Planet Earth." We can't get anything built in this country. We did a survey of the last three years of energy projects that were being proposed across our country; 380 of them have been stopped with environmental litigation. Half of those were in the renewable area. So, we have to find a way to actually have the regulatory deciding the licensing, the permitting process, in place in this country so that both the renewable technologies, the renewable sources of energy, and others can actually get built. Because if you can't move a molecule from where it's produced to where it's needed, it's not going to get produced because it can't get to market.

We have got to find a way to get beyond the banana syndrome that is a plague in our economy. It's not happening in China. It's not happening in Europe. But it's happening here, and we have to get a lot more serious about permitting and licensing.

My last I: intellectual capital. We worry everyday about reducing our dependence on imported oil. I think we should be worried equally, if not more so, about imported intellectual feedstock. We are graduating fewer and fewer engineers, fewer and fewer people with scientific backgrounds, fewer and fewer people that can actually sustain the innovation cycle that we need. We should be very concerned about that. We should fully fund the activities that have been proposed to actually make us competitive because, while we graduate very qualified people, we're certainly going to be outnumbered over time with other countries that are graduating more and more engineers to satisfy their innovation needs. And that's not just in the energy space, it's in the IT space, it's in the pharmaceutical space. So let's get serious about intellectual feedstock.

Let me talk about quickly what the business community is very concerned about. What are they concerned about at home? They want an achievable and realistic approach to energy and climate change. I mentioned the 20 million jobs. They want to

create these 20 million jobs. They still want to be profitable and they don't want to run their consumers away. So, we need an achievable and realistic approach.

In order to be successful, we've got to get at the regulatory stream running issue that I just mentioned in terms of banana. Internationally, what are they concerned about? Wealth transfer, worried about the huge amount of money those developing countries are asking in the international negotiations to be transferred to support their efforts. In the UN discussions, we're talking about anywhere from 0.5% to 2% of GDP. If we were to make that commitment and make those types of well transfers we're talking in 2008, it would have been about between \$72 billion and \$250 billion. That's an astronomical amount of money that the private sector's very worried about how that money and that capital will be raised over time.

They're very worried about IP, you know, Intellectual Property. That is the incentive for them to invest in these technologies. If they are mandated to give these technologies away to developing countries, they won't create these technologies. They want their IP protected. That is the only way that they can be competitive. That is the only way that they will make these badly needed investments.

And last, they're very concerned about a trade war. We talk about, if other countries don't do what we might be prepared to do, we're going to throw up carbon tariffs at our borders so that we actually maintain competitiveness. Many of our companies are multinational companies, and they're very worried about starting a trade war. Nobody wants a trade war, particularly a green trade war. And so we have to find a way to actually exert leadership so that we can show China, show India, show Brazil that there's a way to grow your economy, improve your energy security, and be terrific environmental stewards at the same time. That it's not an either/or, it's an "and" proposition, and if you can find that the solution to the "and," you don't need trade war. Thank you.

Richard: Thank you very much. Thank you very much, Karen, and last, but certainly not the least, we have Jason Grumet from the Bipartisan Policy Center.

Jason: Hello, everybody. Thanks for joining us here this morning. I will note, you know, and everyone's always going to focus too much on the temperature in climate debates. It is April, we've been through Spring. It's going to be 87 degrees outside. We're in an iconic federal building named after Ronald Reagan, the President, and it's like 36 degrees in here. So, discuss price high carbon. I say yes.

So, I run an organization called the Bipartisan Policy Center. It was founded by four former Senate Majority Leaders — Daschle, Bob Dole, George Mitchell, and Howard Baker — to try to revive the dark art of principled compromise, which from time to time in this country's history is actually how we get big things done. We don't believe in compromise because we think people should be nice to each other. It's just our sense that absent that kind of general public support for the kind of economy-shaping decisions like we have to make in energy policy, it's hard to get them done and it's hard to make them sustainable.

As Richard pointed out, energy is kind of the flagship project of our exercise. We are also working on other small fund issues like what to do about nuclear in Iran, the national debt, transportation policy, health care; have a conference going on across the street at Homeland Security. And I mentioned that both because it is a target-rich environment for really big freaking problems in the country right now. But it also requires us to think about how energy fits in to what's going to happen in the next eight or nine months here in Washington. I think I've been asked to some extent to share a little bit of a sense of prognostication of the possible.

And I want to start out by saying I don't know. So, what I'm going to do for the next eight or nine minutes is give you the factors that make me not know and then see if you can, you know, reach your own conclusion. And if you do, please share it with me on the way out. But also just to let you, it's a crowded space. There are probably about

56 days left this year in working days in Congress. You've got to make some assumptions about when folks go home for recess. But less than six days left in this entire Congress.

And so one of the real key challenges we have to understand together is, "Will Congress and the White House pick energy?" because there's absolutely no way we are going to get to all of the big challenges based in the country in those 60 working days. And so I tell you to kind of get a little bit of the sense of the overall kind of background conditions of what is happening up the street. I should also thank Richard, as we all have, for having EIA occasionally kind of push the stubborn fact into the mosh pit of the congressional debate. And I just say...also in any transparent assumption which is, those of us who redo [sp?] modeling, I greatly appreciate it.

We are basically going to figure out in the next three or four weeks whether or not we're having climate debate. That's good news for those of us who have been watching and at times participating in this movie for the last six or seven years. I will tell you that in response to the question, you know, "Copenhagen. What next?" I mean, the bottom line is until and unless the United States of America, puts the full faith and credit of the government behind price on carbon across this much of the economy, we're not going to get the job done. We're not going to get the job done in terms of any kind of international agreement. I agree with Gina. I think that the President was spectacular in what he is able to achieve, with really, we can't in an international discussion.

Even this President isn't going to get through that twice. If we don't have something that is approaching a significant amount of the, you know, economy in some kind of carbon energy in going into Mexico City, I think it's hard to imagine that the UN process has much chance of moving forward successfully. I think that as Joe and others had pointed out, there is also a great deal of optimism that processes in parallel to the UN that might include a smaller number of nations might then take over.

But basically, this is the window where we have to now step up and put a carbon price into the wall books [*sp?*]. What that price is? I don't care so much. You know, we become pretty pragmatic about the necessity of having a price on carbon. Something in the 20s, feels about right if you look at where the legislation is gearing and they're kind of sloping the assumptions about technology.

If we put together a program in the country that has about \$20, you know, computed price in carbon, I think that would be great. \$10, \$12, \$14, it's mathematically and politically, infinitely, greater than zero dollars. So, I wouldn't cough with those numbers. \$30 won't scare me either. The issue is getting a price on carbon somewhere in that \$15 to \$30 range that starts the system moving forward. How we get there? Again, I think that the intense obligation on all of us who have been advocating for action here in the next several weeks is to be exceedingly creative and pretty flexible.

And I'm actually optimistic that most people seem to get that joke now...and a lot of issues that have been third wheel issues are on and off the table now...do seem understood to going to be part of that very messy solution if we have one. So kind of a couple of good news, bad news, and then just little few thoughts about the different nucleation points that are out there. So we have an unpredictable, political system. At the moment, that's good news because if you were to ask, you know, most of the pundits about whether we're going to get carbon legislation passed this year, the answer is generally not so much. I mean, I think if you look at the kind of the predictable expectations, the stars are not lining up for us in the next 60 legislative days very suspiciously at the moment.

The fancy French philosopher de Tocqueville, and I know this because it popped up on my calendar, not because I read French philosophy at night, said that in the US political system, ideas often move from the impossible to the inevitable without ever stopping at the probable. It's a nice idea. And I guess the question's "What might make that or allow that to happen here in the climate debate?" Well, so the negative

background pressure. We find ourselves at the moment in the country where there is deep distrust of government and deep distrust of markets. That's not good because those are the two institutions that we've been counting up for the last decade to actually get this ship of state in moving towards a carbon program.

People are underestimating, I think, the extent to which the fundamental mistrust now that we have about markets in general has really polluted this discussion. I have some personal concern that even beyond the climate debate, we are going to be left with a learned memory that markets, which has Sant'Pontano *[sp?]* has been dreaming about this since he has the *[inaudible]*. You know, and this was the answer, right? If you worked in the Congress three years ago with the market-based solution, you are half way home. You had the progressive aspirations of the advocacy community. You had the *[inaudible]*, conservative, you know, efficient implementation approach. People in Congress would vote for market-based mechanisms three years ago that they didn't even understand.

If you watch it with the command and control idea, you're basically showing the door before you got three sentences in, total flip. Members of Congress, so you would not believe, are willing to contemplate just about any kind of aggressive technology...picking specific mandatory command and control approach as long as it's not a cap on carbon. And if you walk into a legislator and say, "Do I have a deal for you? How'd you like to create a new hundred-billion-dollar-or-so-a-year commodity? We're going to call it carbon. I can't really explain it to you. And I know you can't explain it to your constituents, but trust me, the good people on the coast are going to make it all work out through derivatives." Not a good sales pitch.

So, we find ourselves at a moment with the basic mechanism. You'll never have a better commodity to cap and trade than a molecule of carbon. But that basic architecture is now, I think, under some real assault, and that is really one of the biggest challenges that we're going to have to move legislation forward.

The good news: health care is done and it wasn't pretty. You know, they'll be dragons, right? There will be some sort of reconciliation and the ship of state will just sail off the edge, right? We don't know what might happen in Government. They're once going to work. Gina's going to work, you know. Joe doesn't leave work. We are legislative. The country's acting. There is going to be some bipartisan movement on financial sector reforms. So, the good news is Government is functioning. We faced our fear and it doesn't seem to have stopped us in our tracks.

So, there will be legislation moving forward. As Phil Sharp mentioned earlier today, much of the landmark environmental legislation has in fact passed in the election year. So, the real question is, is this going to be environmental legislation or tax legislation? The winner of that definition probably gets to kind of choose. And so what's about to happen? Senator Kerry, Graham, and Lieberman have been doing incredible amounts...I mean heavy lifting beyond that which is fair to expect the public servants or especially their staff.

They're doing this without a committee structure, which I think is both to their courage and credit as the community structure doesn't really match the problem, will require multiple committees to get their arms around climate change. The problem is they have no infrastructure below them. Committee structures are nice because committees have staff. And so we have, you know three or four incredibly capable talented, lovely people who have not slept much and will not sleep much until and unless that legislation is, in fact, drafted. And the word is probably April 20th. That's the week that Senator Reid has told the KGL trio that they need to have it billed out. It's an interesting week because it has the two worst days in the US calendar contemplate. You have Tax Day and Earth Day. No two worst days could be picked to rule out an energy and climate bill. So, they're going to find something between the 15th and the 22nd. I'd bet on the 20th.

So, then the questions becomes to the President and to congressional leadership, is there a path forward that logically suggests pouring incredible amounts of political force to push this bill forward against all the other imperatives that we are facing? And the answer is maybe.

Let me just kind of give you a couple of the points of departure. So, I think about five different areas where there's activity on the Hill which is important to advance the energy debate. If I were the President, I would be watching and trying to kind of nurture all of these different efforts forward in the hope that sometime in early May, it would be possible to say "Hey, why don't you come over to the East Room and see what we have in common?"

So, let's just take a quick look at what seems like it's going on and what might be the kind of core those common interests? As I say, Kerry, Graham, and Lieberman are clearly doing the heavy lifting. They're going to put out a significant economy-wide approach on climate change. Understanding is that it's going to be kind of power-sector focused. It will bring in the manufacturing sector somewhat later. The innovative twist is they seem to be taking very seriously a suggestion from a number of oil companies to have what's called a linked fee in which the petroleum carbon is essentially...that the fee on refiners the government collects those money and the government uses those resources to take the tons out of the system.

So, it's another approach to kind of an economy-wide program that the oil companies, for reasons we could explore if you're interested, at least some of them seem to prefer. And then all the other issues that have been out there for, you know, quite a while. They are working on a price color. They're trying to figure out how to embrace and limit international offsets. They're dealing with, of course, the question of where all the money is and the allocation system. I think they're generally going to follow the Waxman-Markey framework for as much of that. Although, I'm sure it makes some changes, big debates about what's happening with efforts of the states and EPA

and a general assumption that, if you have federal legislation, you will try to have some kind of unified playing field. Certainly, at least, for the smoke stacks regulation.

So, that's certainly the main course. Senators Cantwell and Collins have had a piece of legislation, introduced Bipartisan Bill for several months which is basically an economy-wide cap. It's a lower target. It excludes international offsets about which a number of members have, I think, some understandable skepticism. Very, very aggressive controls on who can be in the market. Senator Cantwell has some memory of the company Enron and the impact of that that had on her constituents, very strong version to risk some market manipulation. And on also on allocation scheme, cap, and dividend, they call it which basically have the money go back in checks. Your energy prices will go up. The Government will take the money, stroke you all check. So, it's somewhat simpler and more transparent effort to give the money back.

Power sector. There's a Three P Bill that has been working its way through the environment public work committee now for several of years under Alexander, under Carper and a bunch of others who have gotten behind it. Interesting that you're not hearing people express anxiety about market manipulation when talking about a Power Sector Bill. I think that's very instructive. I think people get that a power sector cap can work. We've done it for 20 years. There hasn't been that kind of anxiety and people just fundamentally kind of understand intuitively how you are to put a cap on smokes to accidentally find a low-cost solution.

You also have in the Energy Committee some interesting efforts going forward looking at a power sector carbon cap. In all of those cases, there's a strong emphasis on having price collars. You have an absolute ceiling and floors that you don't have too much price volatility. And then just the last two to take off, Senator Lugar has indicated that he's drafting a very ambitious bill that does not have a carbon cap, has an aggressive clean energy portfolio stand along the lines of, from what General Electric was talking about, which operates in many ways like a power sector cap, power sector

focused obligation to decarbonize using any technology that gets you there, and then very aggressive command and control national building codes, energy efficiency standards, appliance standards.

And then finally, you have Senators Murkowski and Rockefeller basically saying, "We think Congress should go first." And whether it's by trying to append the endangerment finding or having a more targeted amendment that basically says EPA, you essentially have to do much of what EPA is doing itself, which is to kind of slow down the regulatory machine to get Congress an opportunity to move forward. Those efforts have a lot of momentum.

And then finally, you just had an energy bill out there. There is significant enthusiasm to do something about citing, as Karen points out, significant recognition that we have to have a more deliberate and dedicated organized approach to energy innovation financing as to have a green bank is quite popular. Big announcements recently about efforts to increase domestic oil and gas production, support for advanced nuclear. There's a lot of energy bill enthusiasm out there. Energy bills tend to get 75 or 85 votes. They tend to be pretty Bipartisan.

So, you step back from all of that. What I see is a lot of enthusiasm for an energy bill, a lot of interest in power sector focused efforts on climate and other pollutants, clarity that there will have to be some kind of cost collar to avoid the anxieties in the reality of price volatility in initial market. If we have a strong federal role where we had that strong federal role, I think you will see Congress essentially clear to playing the field of alternative regulatory efforts at the Federal/state level. I don't think they'll do so in areas where they're not regulating. And finally, you're going to have some pretty strong market oversight.

If these efforts all mature nicely over these four or five weeks, I think the President would be in a position than to call in 14 or 15 members of the US Senate from

different parties and say, “Here’s what I think you’re all agreeing about.” And if that premise holds, then use that as the basis of a legislative effort going forward.

And so our effort is to basically support all moving trains. I think the x-factor as it always is on energy policy is gasoline prices, because that is, outside of this room, the only aspects of energy policy that most people engage with. When gasoline prices go up, as they inevitably will in a few months, it reminds us both not only that we don’t like to pay a lot of money but that we don’t have control.

It reveals to us our absolute lack of control over our own destiny in this area and that upsets the American public. And so if that happens too, which is inevitable, then you can see a cocktail that may make a Mr./Doctor de Tocqueville — I don’t know really if his proper title was correct — and you could see us leap from what appears now to be impossible to inevitable. Thanks.

Richard: Thank you. Thank you, Jason. That was an excellent description of the state of play. I want to move directly to start with Karen Harbert building on where Jason just left off, which is your sense of...I mean it’s hard to characterize the business community as a unified force. I mean I think already today we’ve seen different points of view, but what is your sense — at least the part of the business community that you’re in touch with and then have worked with...your sense of the comfort level there right now with Energy and Climate Legislation?

Karen: Well, I think you’re right. I mean, the business community is certainly not monolithic in its views. However, you know, I can’t...there’s not one CEO that wakes up in the morning and says, “I am going to go out and try being a bad environmentalist steward.” Now, they all are together and they all want to find ways that we can continue to transition to a low-carbon future that is not overly disruptive to their course of business. And I think Senators Kerry, Graham, and Lieberman were very prescient, in inviting the business community early and often to the table because these issues are very complex and nobody was elected to Congress because they were specialist in

energy. And as the business community has engaged in discussions with them, they have been able to unravel this a little bit so they can understand where some of the tradeoffs are, where some penalties were going to be imposed as necessary. It didn't need to be in their approach. New innovative ideas came to the table. So, I think the business community's message to policy makers both in the Administration and to Congress is, let's have more back and forth. Not only can we help you understand some of the real impacts on our business and our ability to operate but we can also tell you where we think the opportunities are where the most technological advanced opportunities are that we can accelerate if you would only give us some certainty.

And certainty doesn't translate into cap and trade. Certainty means we want to be able to operate. We want to be able to be profitable. We all want to be able to know the rules of the road.

And right now, with...if you're a CEO and you have a Board of Director's meeting, and you could say, "I'd really like to hire a hundred people and I'd really like to do this project." And the Board will say, "Well, what are my health care costs?" We don't know quite yet. "What are my energy costs going to be?" Well, we don't quite know yet. "Well, what are my taxes going to be next year?" Well, we don't know yet because we're going to write the tax code at the end of next year.

It's a very complicated process. So, I think initially at least a couple of those will provide the certainty that the business community needs. They don't need a command and control mandate topdown two degrees. This is what we've got to do. They just need to understand some of the risk so they could continue to move forward.

Richard: Thanks, Karen. Building on that I think one of the things I took away from Karen's earlier comments was the incredible inertia interjectory that global economies are on with regards to our energy system and the depth of the challenge there. You know, Joe, you've worked a significant amount both in domestic but also international agreements on global climate change. And I'm wondering how you view

the role of international as well as domestic policy and kind of changing the direction of that ship and what are the components that are necessary and over what time frame?

Joe: Well, I mean, certainly some of the statistics Karen presented, you know, paint a really daunting picture four decades out. I think if we were thinking about those kinds of changes over the course of the decade, they would be impossible. And I think part of it is just thinking through how you start creating the right kind of incentives and really taking advantage of the profit motive to get people to fundamentally change the way they actually use and produce energy.

And I think, given the natural turnover of the capital stock, there are those opportunities that by the time we get to 2050 that we can actually have a fundamentally different energy systems serving as the foundation of our economy. I think it's important to recognize, at the end of the day, we still need the key energy services to drive where there's activity, the manufacturing sector or in our services sector or for those of us and consuming at homes and in our cars, et cetera.

We can be much more efficient in doing that. We can be much more carbon-lean in doing that over that long term. What's important though is not saying that looks so difficult, let's wait. Instead, we need to get somewhere that's actually a pretty big lift over four decades. But to get there, we actually have to start now. We have to start creating the right incentives now to both drive that kind of innovation so that the technology is actually commercially viable and are deployed as we start to turn over our capital stock. But it's also to find ways and identify ways in which we can take some of the easy, the sort of low-hanging fruit, opportunities in the near term both to demonstrate that those sort of what looks daunting four decades out actually looks more and more attainable as we make that near-term progress.

But importantly, how we can demonstrate to countries around the world where there are opportunities for them to also follow in that kind of low-carbon development? There are a lot of opportunities as we look in the US energy system for us to innovate

and effectively identify new technologies that we can actually export to other countries. This is something that has clearly caught the attention of the President, the Vice President, and as well, as many members of Congress, is this kind of concern that we are sort of following behind and innovating in these new technologies. And I think that's why it's going to be important for us to provide the kind of policy landscape. Some of these are on the R&D side as Karen noted. But some of it is also going to be in terms of creating the incentives that will drive the deployment of new technologies. And we think the most efficient way to do that and the most effective way to do that is through pricing carbon.

Richard: Jason, pursuing for this link between the economy and climate, there's...we've been at a time of, you know, significant economic distress and there's two ways that one can imagine that cutting with regard to the climate change debate. On the one hand, they're maybe concerned that, you know, putting additional policies into economy at such time is not a good timing. On the other hand, there's the linkage between economic growth and clean energy development international competitiveness issues which kind of cut the other way. How do you see just from your experience — point of view — how it seems to be cutting within the climate debate in the US?

Jason: It embellishes the passion of both proponents and opponents. Right, I mean, so I think for people who see the larger economic malaise as a larger signal that we're not investing in our economy, we're not investing in our future, we're not building new things and see the basic notion that pollutions is a form of inefficiency, you know, those folks say we lead our way to the 21st century economy by essentially really shaking up the energy system. For those who are struggling, recently laid off, working in energy intensive states, and don't know what a green job really is, it just raises their anxiety and ambivalence.

And so it has actually, unfortunately, I think, added a little bit to the kind of culture where signature in the climate debate that was mollified over a number of years. And so

I think the kind of economic anxiety has certainly...it's hasn't...I mean, it's not helpful, right? It's never good to try and legislate big change in the midst of a recession, and it's just never a plus. But I do think that it does give at least an imagination for the fact that we need some big change.

Richard: Gina, in the event that there isn't comprehensive energy in climate legislation, I mean you alluded to the role that the environmental protection agency would play in terms of our regulations under the Clean Air Act amendments, I think yourself and others have alluded to the potential legal hurdles to using that mechanism. Could you give us a sense of how EPA, you know, if we weren't...let's call it plan B, how EPA is planning on handling that? Do you see those legal challenges...is there something that's going to play out over the course of months, years, longer?

Gina: I guess my sense is that EPA, at least in my office, hasn't done anything that they didn't see legally challenged one way or another. So, we expect any rule that we put out to be legally challenged and really our...the...rules that we're trying to live by are rules that we need to follow the law or we need to follow where the science is driving and we need to do it in its smartest way that we can.

I don't think EPA really envisions itself as a plan B, which I think many have put us out there as a plan B. We actually like plan A. We're doing plan B because the law requires us to do it and we're trying to do it in a way that's consistent with the plan A. But we're not trying to take over the world to figure out how we're going to address climate in it of ourselves, but we do need to recognize that a lot of the rules that we're coming out with that are required and mandated under the Clean Air Act have significant climate implications.

And we should be as smart as humanly possible when we're designing those rules, and we should do it in a way that's legally defensible. But there's no question that everything we do will be challenged, but it has ever since the Clean Air Act went into being. So ...

Richard: Intention of the lawyer, was it?

Gina: Yes. There we go.

Richard: Eventually the number of parts and your marks about, you know, conventional air pollutant regulation could you say a word about...and many of those that the different pollutants would also have implications for investments that might be made that also have CO2 related to them. Could you say anything about the Mercury Rule where that stands and ...?

Gina: Sure. The Mercury Rule, as many of you know, was sort of given back to us. It's no longer...it wasn't found...legally defensible, but it was given back to us in a sort of steroids mat. It's no longer just going to mercury; we have to look at all the toxic submitted from the utility sector and regulate those in one comprehensive rule. That rule is going to be moving forward as a proposal by the end of this year. So we're looking at a fairly accelerated timeline to take a look at it. That's one of the rules that I think many of us understand have brought in implications. And what we're trying to understand is, what is that going to drive in terms of technology changes in the utility sector and how do you use the investments that utilities would make to achieve compliance with that rule in a way that would drive investments in a way that would also address climate change.

We don't want, and I certainly don't want all of our rules to be sending mixed signals or do not look in a coordinated way. I think there is a vision out there. I think we need to be using the Utility MACT and others to enhance how to get to that vision.

But the last thing I want is to be creating a mechanism where utilities are complying with Utility MACT and then finding that we have not invested wisely when there is a price on carbon. So, we need to think of it all in a comprehensive way.

Richard: I've got a couple of questions here which relate to both...or we did as kind of salesmanship as well as more to substance of the relative efficiency of different

policies to addressing climate change. You know, for example, putting a price on carbon, including cap and trade versus carbon taxes or other mechanisms.

I know Jason already alluded to some of the challenges that the cap and trade notion is facing given the financial market distress over the last couple of years. How do you see...Joe, if you want to start on this one...that both the substance of the relative desirability of different approaches to pricing carbon or to more broadly address in greenhouse gas emissions, I guess, as well as the kind of practical reality of what we might see, and it goes beyond cap and trade versus carbon taxes. I mean there's clean energy standard or noble energy standards. There's, you know, direct regulation of sources. There's fuel economy. I mean there's a long mosaic of policies that are in the mix right now.

Joe: Well, I mean, it is interesting how cap and trade has become a dirty word. I would say part of that is just a function of the fact that it was the leading policy in the debate. I mean, I think it would have been...if we are in a world in which everyone was advocating a carbon tax and that was where the active policy debate was that would have become the dirty word. And I think part of that is because when there is, you know, there's clearly those who are involved in this debate who do not want to take action to address climate change. And they're looking at opportunities for how to critique this approach, and the experience with the financial markets provides an additional opportunity for doing that and for critiquing cap and trade as somehow an inappropriate instrument for doing that.

I think there is, when we look forward, one thing that may impact the nature of the debate when we think about the context of the financial crisis and how that has undermined support for cap and trade and the fact the we have financial reg reform debate going on now, and there will be reform of a variety of markets of derivatives markets in financial reg form that will have implications on how we think about markets for carbon.

So, I think there are opportunities where, if financial reg form goes well, that it will actually address some of the questions and the uncertainties and, I think, hopefully address concerns about some of the risk of creating a new market for carbon. I think, fundamentally, at the end of the day, you know, as under...the President's really pragmatic. He wants us to make progress. He believes that we need to put a price on carbon throughout the economy, and, you know, we're open to ideas where we have seen this discussion as sort of the hybrid approach in Kerry, Graham, and Lieberman. In some sense, the President cares that we can do something that achieves the near-term and the long-term climate goals to set out that he thinks also it helps provide the right kind of incentives for innovation that can help drive new technologies and the job growth associated with those technologies.

But he's not strongly *[inaudible]* whether that we have to do it this way or that way but what we have to do is actually stop sort of arguing with each other, make some progress here in the near term, and do so in a way that is both consistent in promoting our economic recovery agenda while addressing the needs to mitigate our greenhouse gas emissions. And he clearly thinks that that is something that is very possible and something that as we work with the Senate, we're going to strive to try to achieve.

Richard: Karen, did you have any reflections on these, all the various policies out there that we see and the ones that seem to have greater, broader, support once that seems clear...losers within the plan oblique.

Karen: You are...fairly called it a mosaic. I sort of think of it as an ice cream store. There are as many flavors of this as our ice cream and you would go and you order the one that you want. And so I think, you know, different parts of the business community certainly favor the things that are going to be more advantageous to their operations than others.

But that being said, I think there's another component that we're not talking about which is, where's the American public in this? And yes, we're in the middle of a

recession, but we're seeing a huge drop off in the support for doing something that actually, you know, impacts their pocketbook as it relates to climate change.

And if you look at the Washington Post poll that they did over this summer when energy prices were lower than where they are today. They ask the readership how many of you all would like to do something about climate change. And they got a good whopping about 76% response and said, yes, they would.

And then they said, "All right, well, what happens if it costs you? If you could solve climate change with \$10 a month, would you do it?" Fifty-nine percent of them said yes. And it said, "Well, what about \$25 a month?" Then it went down to 39%.

So we've got a real palpable issue to deal with out there which is how much is this going to cost? And the American people want a transparent discussion about this. "Let me know." They don't want to be lulled into this. They really want to have a frank discussion with their policy makers. And I think that that provides a challenge and opportunity for Congress because the support for Congress right now is really in an all-time low and the distrust factor is very high. And so the Members of Congress are going to have to really understand these issues, to be very forthcoming with their constituents, and have a very robust discussion about this. Otherwise, if we move forward in such ways as Waxman-Markey, you know, which passed in a very short amount of time and the American public was not educated, I think you're going to see a back lash that may damage efforts in the environmental area for a very long period of time.

So, I think we have to walk into this smartly, to use Gina's word that actually, you know, we haven't...we don't have the level of embracement right now. We don't have the level of understanding. When you ask people, what is cap and trade? And they can't point to it being environmental policy; they think it's an economic policy. We've got a lot of educating to do still.

Jason: Just one, kind of, met a reflection in this. This is kind of the...if we close our eyes and we wake up and it's 2011 and unfortunately we haven't kind of taken the

issue off the table, I don't think that the carbon tax debate is going to change. But I think the entire tax debate will have changed. So, we're \$13 trillion in debt and probably you have kids out there, like this really stinks, okay. I mean we are about to go through whiplash from stimulus to debt, the likes of which no public policy discussion has experienced and certainly not at anytime I've been aware of.

We have a debt commission. It's bipartisan. Basic numbers, if you want to put the country back on some kind of fiscal footing, we have to basically tax and cut \$600 to \$800 billion a year or so. So, let's say you split it up. I mean \$300 or \$400 billion in tax increases. What do you got? Anybody? Energy taxes and a VAT. It's all you got, right? The only two things that are big enough to scratch it.

So, if we actually decide that we're going to think about what happens on, you know, television [*inaudible*] and think about it not visiting us here and actually have significant overarching and tax reform and tax increases which will affect the middle class because we get all the money, not each of us but there's a lot of us. Once you decide that you have to significantly raise taxes, it's hard to find a better idea than taxing something bad like pollution and using the money to either pay back your kids or to reduce taxes on labor and savings.

So, it would not surprise me if through the metaphor of the debt, we back ourselves into a different kind of discussion about energy tax. I don't think we're going to get there as a carbon tax. I don't think we're going to say we're going to do this because of Kyoto or Copenhagen or low-lying nations. But when it comes to putting the basic fiscal health of the country back on, you know, track and protecting our future, then I think you could have a very different discussion next year.

Richard: So this is...I don't know but this is plan C...but this is ...

Jason: Plan W.

Richard: Plan With,

Jason: C sounds very mediocre. I want some kind of a little more of, you know, sinister.

Richard: I assume this is, you know, any event that energy code climate legislations in the form of Kerry, Graham, and Lieberman didn't externalized.

Jason: If we don't...I mean, yes. I think there is, you know, the ABCs that gets kind of goofy but clearly, the dominant idea, it's been there for a decade. The wave is about to crash. It's called the economy-wide cap and trade. It could get scaled back to have kind of a sector-based approach. That's where the energy is, right? But if that does not get across the line in the next 60 legislative days minus one hour from whenever I finish talking, then yes, I think you'll see the tax discussion take on a different *[inaudible]*.

Richard: And do you think that, getting back to this mosaic, do you think that Kerry, Graham, and Lieberman have identified a mix of policies, kind of pulled together the pieces that are going to get them where I use some of where we're trying to go which is to put together a package that could actually pass?

Jason: I sure hope. That's what they're trying to do. No, I mean, I think they're being as creative and got politically strategic as one could possibly be, right? I mean, they've broke open the idea that's going to be kind of a single economy-wide pricing that which was confusing people. They're definitely trying to attend to the key questions that are out there. So, you know, if a bill can pass, I think it's going to be largely driven around the way they are setting the table. But I can't answer that yet.

Gina: I think we need to see legislation of that so that people can make an informed decision, say, "This is what we like. This is what we don't like." But we're sort of in this. You know, either that we don't know yet. And until we do, that's where we are.

Richard: I understand from Joe. Even the White House hasn't seen the papers. So, it really hasn't been released yet, has it? All right, but you're supposed to have the *[inaudible]* results on Thursday.

Gina: But I just wanted to clarify one thing that Karen said. And she said made some really good points but I didn't say smartly. I don't even understand what you said. But I did want to make the point that part of the problem that we have...and she's right. The confusion around the whole climate change issue in the sciences has really taken us back in terms of needing to do a re-education, needing to think about how we talk about this differently. But I do think that if you ask people whether they want clean energy, they'd say yes. And I think if you ask some whether they want clean air, they'd say yes. And so we're going to be moving on those fronts regardless of whether anybody admits that climate change is happening or how quickly or whether it's a relevant discussion in the time of an economic crisis. And if we're not smart or smart about what we do with our policies on energy and our policies on clean air, then we are going to be...we are not going to make progress.

And right now the key message for me is that certainty what we need. We are nowhere near that right now. No matter what you think or say, there are no new investments being made in the utility sector because you can't get a utility permitted right now because there's no rules of the road. There's no certainty about what's going to happen on climate.

So, I think that those who want to create uncertainty and create confusion are doing a disservice to us moving forward no matter what you think that moving forward might be. And we have to get much more real about the fact that investments in the private sector are not being made now because of the confusion that exists because of the lack of certainty, and we need to move forward. Now, whether you do that under the guise of climate change or you do it under the guise of clean energy or you do it under the guise of clean air, we really need to make decisions and we need to move forward.

Richard: I think we're going to have to leave it that. We've got an excellent lunch speaker, Dr. Lawrence Summers, Chairman of the National Economic Council. So,

we're going to be moving back to the Atrium. And before we do that, I want to thank the panelists for a really excellent discussion.

END OF RECORDING