UNITED STATES OF AMERICA

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DEPARTMENT OF ENERGY

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NATIONAL COAL COUNCIL

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2007 SPRING FULL COUNCIL MEETING

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THURSDAY,
JUNE 7, 2007

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The Commission met in the Fairmont Hotel, 2401 M Street, N.W., Washington, D.C. at 9:00 a.m., Georgia Nelson, Chairperson, presiding.

PRESENT:

GEORGIA NELSON	Chair
DAVID SURBER	Communications Committee Chairman
RICHARD EIMER	Finance Committee Chairman

(See Members List, enclosed, for the rest.)

AGENDA PAGE

P-R-O-C-E-E-D-I-N-G-S

8:59 a.m.

CHAIRPERSON NELSON: The regular meeting of the National Coal Council is hereby called to order. At our meeting this morning, we are fortunate to have a number of very special guests. We are pleased to welcome this morning the Deputy Secretary of Energy, the Honorable Clay Sell. Also, we have the following speakers on today's agenda: Professor John Deutch of MIT, Bill Brownell, Hunton and Williams, John Ward of Headwaters Incorporated and Paul Ciccio, Industrial Energy Consumers of America.

We will take action on the draft study prepared at the request of Secretary Bodman which addresses technologies to manage, carbon dioxide emissions from the use of coal. I want to make a special announcement with respect to that, that a special panel of Council officers and Members, who have written this report will be acting on this this morning concerning technologies, will be present at the end of the meeting for an on the

record Q&A session. This for the benefit of all Members of the Working Press, because the report is so long and technically complex that we believe those who wrote it are best able to answer your questions. That will immediately follow the meeting.

In addition to the speakers, an action on the new study today we must also conduct the regular business of the Council and we have a very full agenda to do so.

This meeting is being held in accordance with the Federal Advisory Committee Act and the Regulations that govern that Act. Our meeting is open to the public in addition to representatives of our Members.

I would like to welcome guests from the public who have joined us today. If any of the representatives of our Members care to offer comments during our meeting, they are welcome to do so. And opportunity will be provided for other guests to make comments at the end of the meeting.

The full and complete minutes of this

meeting are being made as well as a verbatim transcript. Therefore, it is important that you use the microphone when you wish to speak and that you, please, begin by stating your name and affiliation.

Council Members have been provided a copy of the agenda for today's meeting. I would appreciate having a motion for the adoption of the agenda.

PARTICIPANT: I move.

CHAIRPERSON NELSON: Do I have a second?

PARTICIPANT: Second.

CHAIRPERSON NELSON: All in favor?

ALL: Aye.

CHAIRPERSON NELSON: Opposed? Thank you. The Secretary has also appointed new Members to the Council in 2007. I would like to ask that if any of these new Members are here, you, please, stand as I read your name.

Stevan Bob, BNSF Railway; Paul Ciccio, Industrial Energy Consumers of America; John

Eaves, Arch Coal, Inc.; Mark David Goss, Kentucky Public Service Commission; John Norris, Fuel Tech, Inc.; John Rockett, The Powell River Project Research and Education Center; Fred Reuter, Saint Xavier High School. Welcome to all of you. Congratulations on your appointments.

(Applause)

CHAIRPERSON NELSON: We are also pleased to welcome Tom Shope, Acting Assistant Secretary for Fossil Energy as the designated federal official for our meeting. Tom, raise your hand. There he is. Okay.

Our first speaker, Deputy Secretary Clay Sell. He is here? He is arriving. Okay. Probably would be good to wait to introduce him until he arrives. Clay Sell was sworn in on March 21, 2005 as the Deputy Secretary of Energy after being unanimously confirmed by the United States Senate.

He also serves as the Department's Chief Operating Officer and assists the Secretary with policy and programmatic oversight over the

100,000 employee, $23 billion agency. Previously, Special Assistant to the President for legislative affairs, member of the President's National Economic Council and among many other prestigious positions at both the White House and in the Senate.

It is indeed my pleasure to introduce Deputy Secretary Clay Sell.

(Applause)

DEPUTY SECRETARY SELL: Good morning. I was in the back of the room drawing myself a cup of coffee whenever I heard Georgia begin the introduction, so I will try to drink fast.

It's a great pleasure for me to be here on behalf of Secretary Bodman to welcome this gathering of his distinguished or the Department's distinguished National Coal Council. And we look very much forward to what will come out of today's gathering. And I'm personally grateful to have this opportunity to address you. So thank you and thank you, Georgia.

I do want to stop a moment before I

begin my remarks and take a moment to honor the late Senator Craig Thomas. As everyone in this room knows, Senator Thomas was an important voice in shaping this nation's energy policy for over 10 years. He was a dedicated and distinguished Statesman. He was a champion. A champion for the enduring importance of coal in our nation's energy future.

He was a friend to all of us. He was a friend to the Department of Energy and for my sake and for the Department's sake, he will be sorely, sorely missed.

The Department of Energy values the input and insights we get from the National Coal Council. And you all have been an important part of our efforts to address our nation's short and long-term energy needs. Coal has a vital role, a vital role in the President's vision for greater energy security and I will speak to that at greater length in a moment.

But before I do that, I believe it is important to provide some context, the context of

the new energy reality that we face internationally and domestically and I want to try to take a few moments to explain overall the steps we are taking inside the Bush Administration to address it.

But I believe we really are facing, in this country, a new energy reality that we have not faced at any other time in our history. And perhaps some old hands will say that is an overstatement, but I don't think it is. And I think there are three principal reasons why that's not the case.

We have seen an incredible surge in demand over the last three to four years. A surge that was not properly anticipated by the world's producers and that has resulted in a very tight supply/demand balance worldwide, which has driven prices up to record highs. Now, have we seen that before? Yes. And will the market respond to address that? I believe it will. It certainly will.

But there are two other factors at play

as well. With the increase, with the war on terror and the increased threat that terrorism faces or presents to the world's energy infrastructure and the world's flow of energy trade, that is an added pressure and instability in our system. And I would argue we have even seen elements of those types of threats before as well.

But we now overlay on top of this incredible supply/demand balance a world energy infrastructure threatened by instability and terrorism and we overlay on top of that now the prospect of a carbon constrained energy future, a world where actual carbon emissions will have to reduce and the policies will be put in place worldwide in order to force that to happen.

And that, my friends, I believe puts us into a new energy reality that we have never seen before. And quite frankly, I don't think it is one that is fully appreciated by policy makers here in Washington or in the Congress, because we still see traditional opposition to the energy

solutions that we know we must pursue. We still see the traditional kinds of energy -- of opposition to the policies that we know we need to pursue.

So I think you and we in the Administration must together do a much better job talking about this new energy reality. What it means for our country, what it means for our economy, what it means for our economic competitiveness going forward. It is a serious issue that requires, in my judgment, a much higher level of debate and discussion.

So as we think about that problem, what is our overall policy inside the Bush Administration to address it? And I think it's a pretty sound policy. And I put it into kind of five principal baskets. The first one is we need more traditional energy supplies and principally oil and gas from a greater diversity of sources.

Internationally, we need a more certain and reliable investment climate and we need more access to get the hydrocarbons that are in the

ground produced into market. But here at home, we need to provide greater access as well on the north slope of Alaska to the rich resources of our outer continental shelf into other areas. And although we have made some progress, some small progress in the last few years, we have not made nearly the progress that I would argue that the problem requires.

Number one, we need more oil and gas and other traditional energy supplies from a greater diversity of sources here at home and internationally.

Secondly, we need more alternatives. This effort to develop more alternatives has been central to at least three of the President's State of the Union Addresses in the years he has been in office. He has talked about the role that hydrogen must play. Last year he talked about the role that a substantial increase in biofuels must play for the transportation sector.

Two years ago, he proposed the Advanced Energy Initiative which significantly increased

our R&D budget for coal, for nuclear, for wind, for solar, for other alternative technologies. Alternative technologies must and will be central to how we address this new energy reality.

The third point is efficiency. We've got to have more efficiency in our economy. We have seen substantial efficiency gains in the industrial sector over the last 20 years, impressive efficiency gains. We have not seen comparable efficiency gains in the housing and consumer consumption or in the transportation fleet, particularly in the passenger vehicle fleet.

And so, for example, that's why the President proposed in the State of the Union Address this year the substantial increase in passenger fleet fuel economy with a proposal to reform the CAFE Program and increase it, potentially around 4 percent a year beginning in 2010. That represents a significant potential new savings, a significant potential new energy source in the future years.

Fourth, in everything that we do, particularly as it relates to the development of new technologies and the policies that we put in place, going forward we must have a bias for lower carbon and no carbon technologies.

Now, that's not a particularly pleasant message to come and deliver to the National Coal Council, but I think it's one that you have come to yourself, if I understand correctly what you will be presenting to us in your report. We have to embrace this issue. We've got to grapple with it. We've got to realize how hard it's going to be and make the investments to allow the industry to respond in a way that allows coal to be part of our future, but with lower carbon technologies.

And the fifth thing, from a general policy standpoint that we focus on, is infrastructure. The policies, the incentives that allow us to build out more infrastructure, to rebuild a substantial amount of our infrastructure and to better secure it. And that's a real challenge that we have coming over the next 20

years.

I'll give you one example. The Energy Policy Act proposed a very minimal new authority to the Federal Government that would allow for ease and siding transmission lines, new transmission lines which are critical to the increase of coal-based generation in this country. And there is substantial opposition. Kind of the same traditional kind of opposition against new infrastructure that we have seen in this country for the last 50 years and that must change. And it must change based on a better understanding of this new energy reality.

But let me return more specifically to issues on coal where I think it is important to discuss the term, the highly successful term of clean coal. It is a term that is used often in the lexicon of your interests -- of your industry and in the lexicon of Government. But I believe it understates the significance of the underlying issues involved.

Because when we talk about clean coal,

it inevitably leaves the focus on coal, when the focus should really be on the technology that enables us to use coal more efficiently and in a cleaner more environmentally secure manner. I believe the terms that we use matter as we talk about this new energy reality, because we must remind people that there are great challenges to confront if we want to continue to rely on coal as a major energy resource, while at the same time reduce the amount of greenhouse gas emissions in the environment.

And so the President has made research development and implementation of advanced coal technology a priority for this Government and this nation. But while this technology holds great promise, we must be realistic about the difficulties in the scale of its implementation.

As you all know, advanced coal technologies have major cost, integration and reliability hurdles that must be overcome before they can be widely deployed. We, in the Federal Government, seek to address those challenges by

establishing partnerships with the private sector, creating innovative new programs, such as the Clean Coal Power Initiative and through the use of loan guarantees and tax credits.

Today we see one such result of these partnerships with the private sector as the National Coal Council presents the Department of Energy with its report on technologies that will help reduce or capture and store carbon dioxide emissions.

Secretary Bodman requested this report about a year ago, I believe, and I know its conclusions will receive careful study by our Department. The report is a culmination of one year of hard work by many of you in this room and Secretary Bodman and the entire Department. Thank you.

Another example of partnership is through our work with the seven regional Carbon Sequestration Partnerships, which are conducting field tests of deep geologic storage. This week we received applications from each of these

partnerships that will put large volume CO_2 Injection Projects in place throughout the United States.

These projects will demonstrate the ability to permanently and safely store CO_2 from power plants and other industrial sources. These large scale tests are needed to prove that sequestration technologies can be commercialized and in the future can be used to effectively mitigate greenhouse gas emissions.

Our engagement on the FutureGen Project is another example of our partnership efforts on coal. As most of you know, the field of candidate sites has been narrowed to a final four and we are expecting a final decision on the site from the FutureGen Alliance this fall. For us, FutureGen is a very exciting project, but as with any project of this complexity and of this magnitude, cost is increasingly becoming an issue of concern. And it's a matter that we are taking very seriously at the Department of Energy.

I know that all of you are aware of the

recent escalation of costs in the heavy industry sector, so we are working closely with our partners, the FutureGen Alliance, to identify ways to limit the project costs of the FutureGen Project and to ensure that the project is not just technically feasible, but that it is financially and politically sustainable as well.

Finally, I'm pleased to make an announcement today regarding our work with the IRS to complete the awarding of $1.65 billion in tax credits for advanced coal technology projects authorized by the Energy Policy Act. The IRS and DOE share a responsibility for these tax credits, with DOE in charge of certifying the projects and the IRS responsible for awarding the credits.

These tax credits are an important way to foster the early deployment of advanced coal and gasification projects in commercial use. Now, you may recall, I know that you do, that last November the IRS awarded $1 billion in credits to support nine advanced technology plants in the categories specifically defined by the Act.

Two for IGCC generation using Bituminous coal, one IGCC project using Lignite, two using advanced coal generation technology, other than gasification, and four using gasification not limited to coal.

The application period for the second round of tax credits began immediately after these awards were announced. This morning, I'm pleased to announce some important new details about round two and the $650 million in tax credits remaining.

First, in addition to certifying projects, the Department of Energy will now rank the projects according to certain criteria with the highest priority given to projects that introduce the practice of capture and sequestration into commercial use. To be given priority, a project must capture and store at least 50 percent of the CO_2 produced and the higher a project's ratio of capture, the higher priority that will be given.

Next, the deadline to apply with the Department of Energy for certification has been or

will be extended from June 30th to October 31st allowing companies more time to adjust to these new guidelines. The IRS will then award the second round of tax credits on schedule or as scheduled next March.

In addition, we have listened to some of the concerns that were raised during the first round and we have sought to address them in this second round. A technical oversight in the first round precluded sub-Bituminous coal from being considered for the tax credits. And so we have added a provision to accommodate IGCC projects using sub-Bituminous coal.

Also, the definition of coal, for the sake of these projects, has been expanded to include waste coals. So through the partnerships I have discussed, the new programs and the tax credits, we, at the Department, are promoting the development of advanced coal technology projects that honor greater efficiency, which in turn delivers more energy, while either eliminating or slowing the growth of greenhouse gas emissions.

We cannot ignore the great challenges we face when it comes to meeting the challenge of this new energy reality, but we are on the right path. President Bush provided the vision six years ago, a vision that has stayed, that was, in my judgment, remarkably prescient and has provided good guidance to us over these succeeding six years.

Since then, we have worked together on developing the plans and technologies to best realize the vision that was laid out. And today through public/ private partnerships, we are finally beginning to see those plans become reality. This success is in no small way thanks to many of you who have invested your time and effort into addressing America's greatest energy challenges.

With your continued support, we can keep building on these successes and ensure that coal will be an environmentally safe and plentiful source of energy for the United States and the world for many, many decades to come. We must

have it. We must be successful. We look forward to working with each of you. Thanks.

(Applause)

CHAIRPERSON NELSON: Okay. Thank you.

DEPUTY SECRETARY SELL: Thank you. I'll mix in a dream.

CHAIRPERSON NELSON: Of course you can. We have time for one or two questions. Anyone have a question? Yes, please, stand, Ken.

MR. NEMETH: Just a question, Mr. Secretary, referring to your discussions on international security and energy security as you began your talk. Nowhere in your discussion did I hear anything about coal-to- liquids in the future. I think it was a bit implied, but I would just like to hear what the Department's thinking is, at this time, on Advanced Coal-to-Liquids Programs on gasification, Fischer Tropsch, liquid fuels or whatever you would like to call it, but I would like to hear a little bit of give and take on that. Thank you.

DEPUTY SECRETARY SELL: Thank you for

the question. The President sent to Congress legislation in support of his advanced or his alternative fuel supply mandate a few months ago. And that legislation specifically contemplates all alternative fuels, including coal-to-liquid fuels. And it is our view that that has great potential in offering increased diversity in our fuel supply in a way that will enhance our international energy concerns.

I think coal-to-liquids carries with it the same challenge that other advanced coal technologies carry with it and that is carbon emissions. And going forward, I think, we have to think in terms of coal-to-liquids plants with carbon capturing sequestration, which, quite frankly, makes them more costly. And the threat and the concern and some of you in the room are -- you know, perhaps bear the scars of this experience, the problem with coal-to-liquids and its economic viability is the long-term price picture.

You know, what kind of bed are you

prepared to make on the long-term price of crude oil over the next 30 years? And when you add carbon capturing sequestration on to that, it makes it more challenging. And so it is our hope and we support policies that will make coal-to-liquids an important part of our transportation fuel mix going forward. That is what we are seeking, but in seeking that, I don't want to understand the difficulty of the challenge that I perceive in being successful in that regard.

CHAIRPERSON NELSON: Another question?

DEPUTY SECRETARY SELL: Surely I didn't shut the group down.

CHAIRPERSON NELSON: We're giving you a chance to have a little more time. No? Okay. Thank you very much. We appreciate it.

DEPUTY SECRETARY SELL: Thank you.

(Applause)

CHAIRPERSON NELSON: Our next speaker will be Paul Ciccio of Industrial Energy Consumers of America. He is going to speak to us about natural gas users' views on coal-based

electricity. Let me say just a couple of words in introduction of Paul. You heard him introduced earlier as a new Member and again welcome, Paul.

He is the President of the Industrial Energy Consumers of America. IECA is the voice of the industrial energy consumer involved actively in both legislative and regulatory issues that impact such consumers. It's a non-profit organization created to promote the interests of manufacturing companies for which the availability, use and costs of energy, power or feed stock play a significant role in the ability to compete in domestic and world markets, a very important cause indeed. Paul, welcome.

(Applause)

MR. CICCIO: Good morning. Thank you very much for the opportunity to be here, to speak with you and also to be a Member, a new Member of the Council. I hope you're not shocked by the title of our presentation. U.S. Manufacturing's Future is strongly linked to that of the coal industry. Seriously, in our view, we sink or swim

together.

To familiarize you with our companies, we are all consumers. We represent the largest and the energy intensive consuming industries in the United States. Within the membership are the largest chemical manufacturers, plastics, fertilizer, steel, cement, fertilizer, food processing, they are large consumers and they have a great amount at stake on affordable energy, reliable energy here in the United States.

We are not a glamorous industry. On the left hand side, you will see who we are and we are truly the building block products. And if you look to the right, you take our basic building block products and they are converted to commercial and retail products that are essential to quality of life in the United States.

But on the left hand side, those are energy intensive industries and if we cannot afford to produce these products here in this country, these companies owe it to their stockholders to move to places where they can be

competitive and where they can succeed. And that is the challenge that we have here in the United States today.

These companies invested in the United States in the '60s and the '70s and in the early '80s for a lot of good reasons: Access to customers, quality of work force stability in Government, and reliability of energy and globally competitive energy. And that resulted in significant capitalization.

But things have changed, particularly since late 2000, things have changed dramatically and that is the high price of natural gas and the ongoing increasing price of electricity. The impact of high natural gas and electricity prices is the major reason for the loss of some 3 million high-paying manufacturing jobs in the United States, again since late 2000.

And unfortunately, I'm here to tell you that for these energy intensive industries, it's continuing. It's happening, though more quietly than what it had in the early part of the 2000s.

But I assure you that energy intensive manufacturing companies are not investing in this country. They are investing outside this country and that is not good for the United States of America.

What has happened is, as you will see as I walk through these slides, we have seen the dismantling of many of these facilities, thousands of these facilities. They have moved off-shore and now they are importing these products into the United States and, obviously, that is contributing to our increased trade deficit.

Our opening comment was that we swim or sink, sink or swim together. What does that mean? Energy intensive manufacturing, as I said, is losing the battle on competitiveness because of energy. And the problem is that -- twofold, electric utilities are increasing their consumption of natural gas and, unfortunately, natural gas supply in the United States is very fragile and has been reduced 4 percent since 2000 and is going to continue to be fragile for many

years.

Larger consumption of electric -- of natural gas by electric utilities have driven up the price of natural gas and now is increasing the price of electricity and that's making things more difficult for us. The solution and where I think we come together here is that greater use of coal from base-load power generation and, and it's a big and, future supplies of methane from coal and use of feed stock for production of chemicals, plastics and fertilizer is a great place for us to work together.

This slide just says what probably is obvious to you, but I wanted to be sure that you have heard the whole story from our perspective. Natural gas continues to increase its share of the power generation market. Back in 1994, it was only 14 percent. In 2006, 20 percent.

The resulting impact of higher demand by the power sector and flat to declining supply in the United States has had the obvious impact of increasing the price of natural gas. What you see

on the far right hand side is a January 2008 NYMEX price, where recently the price went up to $10.

This slide comes from FERC, May 17, 2007, summer assessment which goes to the heart of the issue of natural gas connection, natural gas, electric generation and consumption of natural gas and the impact on prices across the United States of electricity. FERC says that prices this summer will go up versus last summer. In the northwest by 23 percent, the midwest 30 percent, Massachusetts Hub up 25 percent, New York City up 20 percent, PJM up 19 percent, Southern California up 29 percent and ERCOD up 32 percent.

And if you notice, the caveat here, Henry-Hub price $8.11. Ladies and gentlemen, you know, because you pay attention to energy, that prices of natural gas over the course of the last 30 days has hovered just under $8. So the potential for these prices of electricity to go much higher than that exists.

Electric Power Research Institute recently said "Although natural gas is used to

produce only 20 percent of the generation, it now accounts for 55 percent of the electric industry's total bill, $50 billion out of $91 billion." Manufacturing natural gas demand, well since the year 2000, high prices of natural gas has resulted in the shutdown, the dismantling of many energy intensive facilities across the country.

We, today, use 1.5 trillion cubic feet less of natural gas than we did not that long ago. 18.5 percent reduction. Unfortunately, with the loss, the cut back of that natural gas, because of high prices, came jobs, high quality jobs. It's still hard for me to believe this, but in a relatively short period of time that you see on this slide, we have lost 3 million manufacturing jobs.

Now, 3 million is 17 percent of total manufacturing jobs. And what also should be shocking to all of us and to our leaders in Congress is that if you notice, we have had for the last four years very robust economic growth. This is the first time in history that we have had

robust economic growth in the United States and we have not seen a resurgence in the growth of manufacturing jobs.

So we sink or swim together and why is that? The second point, under a carbon constrained U.S., the manufacturing and the coal industries will be as a distinct competitive disadvantage with our respective competitors. Our competitors are manufacturers outside the country. Now, if energy prices were the same across the globe, this would not be an issue for us, but high natural gas prices, in particular, we have had on average, as a matter of fact, since 2000 the highest natural gas price in the world. That's on average.

Go to Europe right now, the prices are around $5. If you go to China, about $5.50 equivalent and that's what we're competing with. So the solution, another reason again why we're here, why we're happy to be Members of this National Coal Council and why we want to work with you closely is that we believe that we have got to

succeed just like the Honorable Clay Sell just said, we need technology solutions to reduce the void, capture, sequester carbon economically. It's got to be economically. We need, quite frankly, low cost energy to stay here.

And wrapping up, one of our major concerns regarding this future fast arriving carbon constrained world is the concern that we have over electric utility fuel switching from coal to natural gas. There was a hearing that Senator Bingaman recently had on March 26th that spells it out in black and white. One of the Europeans that he had on the panel was asked a question by Senator Corker about price signals to getting to lower carbon.

And the answer was the majority, I guess I should say quote "The bulk of the greenhouse gas, the CO_2 emissions that occurred in Europe as a result of the EUETS was from electric utility fuel switching from coal to natural gas." If that happens in the United States under future constrained legislation, it spells real bad news

for the manufacturing sector. We can't compete with that. Utilities can buy gas. They can pay high prices and we cannot and we will leave.

So with that, ladies and gentlemen, we, as the Industrial Energy Consumers of America, and unfortunately with that sober story that I shared with you, we do look forward to being here and working with you and being successful together. Thank you.

(Applause)

CHAIRPERSON NELSON: Do we have a question? Fred? I don't see a microphone.

MR. PALMER: Fred Palmer. I think, first of all, it's terrific that you are a part of --

CHAIRPERSON NELSON: Excuse me, Fred. Let me get you over here.

MR. PALMER: I think it's terrific, Paul, that you now are part of the National Coal Council and as Chair of the Co-Policy Committee, we will be scheduling a committee session here pretty quick to explore areas of inquiry that we

might go into. In looking at this presentation today, it occurs to me that this linkage between high priced electricity, use of natural gas for electricity and coal and its impact on manufacturing should be explored in depth to let people understand what exactly is going on.

This week, the State of Florida turned down a 1,500 megawatt coal-based power plant in central Florida. Florida is 100 percent on the gas curve, which means more natural gas for Florida. Natural gas in the U.S. is in decline, that means it's imported natural gas. The imported natural gas comes from Qatar and Russia.

So in the context of the work that you are doing at the IECA, what is your thinking with respect to the LNG situation or the long-term sustainability of that model?

MR. CICCIO: Well, we are very -- have been consistently and still remain very, very wary of LNG as, let's say, a major savior or solution to this issue. My companies, most of them are multi-national. And we -- they see what is around

the world and they see that there are existing LNG import facilities all over the world, in Europe and in Asia, and they are expanding these import facilities without any delay.

And we are deeply concerned about the discussions that LNG producing countries are having in setting a future cartel. There is great opportunity for, in our view, dislocation of supply and higher prices when you consider the increasing production or the slower production of LNG, the availability of cargos and the import facilities in the United States. There is a whole lot of areas, three major areas where things can go wrong, that to us spells unreliable.

And something to think about, if we do have an LNG cartel, so that means all prices of LNG are the same, just like you have in crude oil, OPEC today. We, as the United States, would be disadvantaged, because of distance. The distance from North Africa or West Africa to our East Coast or Gulf Coast is much, much further than North Africa/West Africa to Europe.

And if you look at the distance between places like Australia, it's producing LNG, our West Coast is significantly further than supplying that LNG to places in China. So freight would -- we would have a net increase in the cost routed to our competitors. Thanks, Fred.

MR. BROWNELL: Thank you for the presentation. It was quite interesting. The 3 million job loss figure is really quite astounding. I have a question and a comment. First, the question is that could you point us to where the analysis of study on which that figure is based? I think it would be useful for us to look at and go into a little greater detail.

MR. CICCIO: Sure.

MR. BROWNELL: I'm Bill Brownell from Hunton & Williams. The comment is that as you were talking about the relocation of manufacturing jobs overseas, there has been interesting work done that suggests that the carbon intensity of the unit of production in China and India is about twice that in the United States, so we're not only

talking about creating a challenge from domestic jobs, but we're also talking about creating environmental challenges by creating a dynamic that moved jobs overseas.

And I just wondered if you all had looked at that, thought about that aspect of the issue at all?

MR. CICCIO: Well, we think about it all the time. As Clay Sell had mentioned, the manufacturing in this country has an incredible track record of reducing the energy per widget of output going back to the '70s. I mean, it's an absolutely amazing success story and the reason is obvious, energy is a cost and we are competing in a globally competitive industry. And if we're going to compete and win, we have got to reduce our cost. And we have been pushing down the cost of energy for a long, long time.

Getting to the heart of places like China and India where there is great efficiencies, you are absolutely correct that they are using much more energy to produce the same widget,

whether it is a barrel of beer, a ton of steel, a ton of aluminum or a pound of plastic or whatever. And, in fact, when it gets to this heart of greenhouse gas emissions, carbon constraining the world, we have done a disservice by moving, by not having competitive energy and moving these very efficient industries outside the United States to places like China to where they are producing the same products, but using more energy and emitting more CO_2.

But, yes, we have looked at it and it is quite frightening, because places like China will build a new, an equivalent industry to the U.S. steel industry every six years.

CHAIRPERSON NELSON: Okay.

MR. HARRISON: I don't mean to hold us up. I mean, based on the U.S. productivity and labor costs and raw material costs, how cheap would energy have to be to bring those 3 million jobs back?

CHAIRPERSON NELSON: Could you state your name?

MR. HARRISON: I'm sorry, Clark Harrison from CQ, Inc.

MR. CICCIO: I don't have an answer to what does the cost of energy have to be. That's a good question and I would have to think about that and if I could, I will get back to you. Please, give me your card.

One concerning comment though, I've got to be honest with you, is that when they shut these plants down, they take them down. They take the best part -- the only parts that are still usable and they ship them overseas and/or what's left deteriorates very quickly. So these plants are done. They are gone. And for them to come back, for these companies, essentially, they've got to build new capacity here in the United States, not restarts. And I just don't know the answer to that question. I wish I knew. Thank you. Thank you.

(Applause)

CHAIRPERSON NELSON: We're going to take a few moments and do some official Council

business. And in that vein, I would like to introduce David Surber, who is Chair of the Communications Committee to give a report. David?

MR. SURBER: Good morning, Georgia, thank you. I plan to speak for approximately four minutes. I wish to thank the Members of the Communications Committee and Members of the Council and other distinguished persons who took the time to attend the scheduled meeting of our group yesterday afternoon.

Our meetings are always held from 3:00 p.m. to 4:00 p.m. on the day before the meeting and all are most welcome to attend. I extend an invitation to anyone who may wish to attend to do so.

At the beginning of our meeting, I presented a report in the form of a briefing for new Members of the Committee and the Council and guests. I should like to read a brief portion of that report.

"Since we all agree we have an obligation to be transparent, I wish to point out

that since this Committee was established in 1998, we work from and follow a written plan.

Since then, we have made aggressive and effective use of various forms of media. We have an excellent and expanding website administered by Bob Beck and his able assistant, Pam Martin, and we have an 8 minute informational CD video, which has been sent to all Members of Congress, to officials at DOE and other agencies, to various Governors and State and local officials and to print and broadcast journalists. The disk is also used to orient new and perspective Members of the National Coal Council.

Since the Committee was formed, we have been featured in major newspapers including the Wall Street Journal, the Washington Post and the New York Times on The Wires, on CNN, NBC, PBS and other networks and even had meetings covered live by C-SPAN.

We have worked carefully to establish and maintain a relationship with journalists and look forward to employing even more methods and

venues for our reports, including, for example, the National Press Club and the editorial boards of major newspapers.

All this to comply with the law and in the bargain to raise the profile and, quite frankly, the influence of the National Coal Council. Not as an exercise in self-aggrandizement, but as an exercise in good citizenship and public education."

Other matters which came before the Committee yesterday:

I explained that the press release which details and highlights this meeting was transmitted in advance electronically. We also discussed updating the CD video by virtue of the developments that we were discussing here shortly in the report, carbon sequestration, global warming, those sorts of things.

The Committee also heard a thoughtful report by new Council Member Fred Reuter, who is here today for the first time, who suggested creation of a Coal Council- funded cash prize for

secondary school students who devise means and methods to capture carbon dioxide, reduce greenhouse gases and employ clean coal technologies and alternative energy sources.

The work of the Communications Committee is factual education in accordance with the constraints of the Federal Advisory Committee Act. I would, as I have often done, remind the Council that education does not take place overnight, but over time. Thank you. Thanks very much.

(Applause)

CHAIRPERSON NELSON: Rich Eimer, Chair of the Finance Committee. Rich?

MR. EIMER: Thank you, Georgia. My name is Rich Eimer. I Chair the Finance Committee and I would like to make the following report from our discussions in the joint meeting between the Finance Committee and the Executive Committee yesterday.

The Finance Committee and the Executive Committee reviewed and approved the annual audit

of the Council performed by Chaconas and Wilson for the fiscal year 2006. In relationship to that, the Finance Committee and the Executive Committee also recommend that the Council retain Chaconas and Wilson to conduct the 2007 audit accordingly.

Therefore, I so move and I look for a second. Seconded. All those in favor?

ALL: Aye.

MR. EIMER: Opposed? Thank you. Georgia, if I might have just a couple more minutes. The last meeting that we had in this room, I reported on the financial health of the National Coal Council. The trend in that financial audit that I just reported on are disturbing and I reported that the last time we met.

The Executive Committee has been really hard at work along with the newly formed subcommittee of the Executive Committee, the membership have been looking for ways to improve that financial health. I would like to make a

couple of points in that regard.

The annual budget of the National Coal Council is about $600,000. That budget hasn't substantially changed in about 20 years. If you just look at inflationary pressures, you can understand the challenges that are associated with a flat budget over that period of time. If you look at the work that the Council has done, then you can also get another idea about the challenges that we face in that regard.

Funding for the National Coal Council expenses only covers -- I mean, can only come from one place and that's the Membership of the Council. That's how the Council's budget is funded. And although your dues payments as all of us as Members of the National Council are voluntary, there is an expectation as a Member of this Council that you will pay those dues.

We only effectively have two ways to raise funds for the Council and for the Council to do its business and that's either to increase membership or to increase the contributions that

come from the existing membership.

Today, I would just ask, at this point in time, for your patience, your understanding and your support as we, in the Executive Council and the Finance Committee, pursue both ways. More to come on that. Thank you.

(Applause)

CHAIRPERSON NELSON: Thank you, Rich. Larry Grimes, Counsel to the National Coal Council.

MR. GRIMES: Good morning. Counsel to the Council, that's an interesting set of words.

CHAIRPERSON NELSON: Is that good?

MR. GRIMES: Thank you. Madam Chairman and Mr. Vice Chairman, thank you for your attention and thank you for assembling such a wonderful group of people here, although each of you is sponsored by and appointed by the Secretary of Energy, it takes a lot of scrutiny on behalf of a lot of people to assemble this kind of talent.

And I want to commend our leadership and to tell you that in my time with the Coal

Council since day one, I have never seen a better group of people or better work come out of the Council than I have in the last year or two. Thank you.

Welcome to the capital of allergies, Washington, D.C., where I live. Every year or two when we have enough new Members assembled, I'm given the opportunity to do a sort of tutorial, an orientation to tell you a little bit about how we are organized, what we do and make some suggestions for you to be able to participate more fully.

Now, when I talk to coal people, and I have had that opportunity now for many years, I sometimes feel a little bit like a lion in a den of Daniels, because all of you know more about coal than I do. However, I do have a pedigree in the coal business, because a great grandfather of mine and his father were both, unfortunately, killed in coal mine accidents in Elmo, Wyoming. So I do come from a line of coal people and I'm proud to say that this industry, which you

represent, is the most critical, I think, in the history of this country in terms of its energy independence and a way forward out of the mess we find the world in today.

Okay. Now, we're a Coal Council, how do we operate? First of all, let's talk about organization. Each of you wears two hats. Each of you is a Member of the National Coal Council, which is an appointive Federal Advisory Committee, and you are appointed by the Secretary of Energy, that you know. You may not know that you are also each of you a Member of a non-profit Virginia corporation known as the National Coal Council, Inc.

And the reason we have that corporation is so that it can serve as an umbrella organization over this Federal Advisory Committee in order to do the housekeeping. We provide office space. We provide professional assistance. We provide organizational abilities to help the layman and the volunteer membership and leadership of this Council do its work.

We're not a large organization, as was pointed out. We have about the same budget that we had 23 years ago when we started, that's astounding. We are, in fact, doing more with less, because I have never seen better work in the 23 years I have been associated than we have had in the last couple of years and it must and will continue.

Now, how can it do that? It can only do that by following our rules, following our procedures and each of you contributing in the ways that only you can do, with your time, with your talent and with your money.

Now, we have a process here which has been carefully scrutinized and worked out with the General Counsel's Office of the DOE way back when, which allows us to do our work, I think, in an efficient manner. You have heard of a study that we're about to adopt and you probably, some of you, have worked on it, but you may not have a sense of how we actually do that work.

The work is done in the following way:

Volunteers are solicited at the outset of a study. Anybody can participate, Members and non-members and frequently non-members do participate with us. Leadership from the Council has chosen to chair a work study group. Now, this is an informal organization that works very much like a committee and what comes out of it looks a lot like a camel, which is put together by a committee, as you know that old story.

But as the process continues, the goal is to assemble data, assemble drafts to get in front of the public body, that is the National Coal Council and its Coal Policy Committee through the public process. So we have worked out, if you will, what occurs below a line, which is the dividing line between the informal activities and the formal activities.

So the work is done. The collection occurs below the line. And then once the material is ready for scrutiny and deliberation by the Coal Council, as a Council and it's Coal Policy Committee as a primary subcommittee, then we go on

the record and the public gets involved in any way it wishes to. And their views are taken into account.

And, in fact, if any Member or any member of the public has a dissenting view on what we publish as our study, we have a procedure whereby those dissenting views can be published and are and have been.

This process has been challenged. The last study it was challenged by the, we think, Natural Resources Defense Council, who we believe prompted a letter from Senator Joe Lieberman over to the Secretary of Energy which challenged us in two ways. It challenged our process and it challenged our structure.

I'm happy to report, Madam Chairman, that the Inspector General of the Department of Energy conducted a thorough study and gave us a clean bill of health. We are following the rules. We're following the process. And our structure is in accordance with the law and they couldn't ask for more.

Now, I have mentioned that the Council itself has this housekeeping organization and sometimes you will refer to motions regarding auditors and budgets and that sort of thing. That's all business of the National Coal Council, Inc.

The National Coal Council itself is a deliberating body relating to policy. So when you are wearing your policy hat, you are not functioning as an Inc. member. But when you are talking about money and mundane things such as voluntary dues structures, you've got your other hat on and you have to keep these separated.

They are both run by the same organization, a group we call the Executive Committee, which is, in fact, the board of directors of the National Coal Council, Inc. Any of you who wish to work in any part of the National Coal Council should make that wish known to our Chairwoman, to Georgia, or to Bob or to Mike Mueller or to myself and believe me, there is always room for volunteers in our organization.

After a few years, many of you will work your way through a variety of tasks and spots and from those people who have been the most active and the most supportive of what we do, a board of directors or we call it an Executive Committee will be chosen.

Now, if you have any further questions about our organization, I'm available at any time. I will be happy to talk to you about it. I would like now in the limited time to switch over to one substantive area that does concern us.

As a citizen of the United States working not as a Government employee, but as a volunteer citizen on a Federal Advisory Committee, you have certain responsibilities. We have chosen to be a self-paying organization and therefore not taking Government money and none of us are paid for this. You are not paid for this. You pay, in fact, to participate.

But you are not exempted from the other laws of the United States. And we have had an unfortunate situation occur over in connection

with some National Petroleum Council activities. The National Petroleum Council is a sister organization that has existed since just after World War II. We were patterned after that organization when in 1984 under President Reagan, Secretary Don Hodell said okay, the voice of coal needs to be formalized into a council and that occurred.

But when we meet and deliberate, a lot of you are competitors and, therefore, you have to follow the Anti-Trust Laws of the United States. There is no exemption from the Anti-Trust Laws or the enforcement of the Anti-Trust Laws by virtue of your Council membership. You may not realize this, but one of the reasons that my job exists is because someone with sensitivity to anti-trust concerns, for example, attends all of the meetings of our work, because, as you may have been taught by your in-house counsel or maybe your outside counsel, if people start to do things that would get them into trouble under the Anti-Trust Laws, somebody has to knock over the pitcher of water

and say we don't talk about that.

Now, that's what -- the kind of stories they tell us in law school when they are teaching us to get ready for this kind of a job. But the fact is that in our 23 years here, I don't think we have ever done anything that approaches a violation of the Anti-Trust Laws. But there are lots of opportunities to do things that could get you into trouble and certainly be challenged.

Now, there has been litigation launched involving a couple of members of the National Petroleum Council in connection with their work on the NPC, the National Petroleum Council. I don't know whether those lawsuits are going to succeed and I doubt that they will, but none of you want to have to defend yourself.

So a reminder and we have written materials which we will be happy to distribute. You can't talk about proprietary data to each other. You can't sit and discuss prices and labor rates and all the kinds of things that you already know about, because by virtue of this position,

you'll receive no exemption.

All right. That's probably enough on that. I just wanted to highlight it. If you have any questions about it, I'm here, please, contact me at any time.

Georgia, unless there are no further questions, that's my report to give.

(Applause)

CHAIRPERSON NELSON: It is now my pleasure to introduce our next speaker, who is a colleague and friend, Professor John Deutch of MIT. You may recall that there was a new study released from MIT, "The Future of Coal." John is particularly distinguished. He has been a Professor at MIT since 1970. He was the Director of Central Intelligence Agency for a while. He was the Deputy Secretary of Defense, pertinent to us. He also served in the U.S. Department of Energy.

He has a biography and resume that would take up the entire rest of the meeting. He is an esteemed colleague and good friend, Dr. John

Deutch. John?

(Applause)

PROFESSOR DEUTCH: Thank you, Madam Chairman. This is a rather foreboding kind of setup here. I don't know whether I'm in front of the International Court of Justice, but --

PARTICIPANT: Worse.

PROFESSOR DEUTCH: Worse, but I'm very happy to be here. In fact, I'm very enthusiastic about being here because I've given a description of our MIT study to lots and lots of different groups, but I have not had an occasion to go into the heart of a group which has so much more practical and detailed knowledge about the coal industry as this one here today.

So I'm especially interested in having an opportunity to talk about what our study was about, what aspects of it you all want clarification, what aspects of it you all think are misguided, but most importantly where this country should go in order to meet the energy needs of the future.

Thinking about this, I have a dramatically long presentation like all academic presentations. It's exactly 55 minutes. If I go through it, I think it will take time away from discussion, interruptions, whatever you want to have, so instead what I have decided I will do is just talk my way through it in case anybody really gets me pinned to a wall, I might then pull out a slide to support one aspect of it or another, but I thought it would go more smoothly from the point of view of an interchange if I just spoke to the study.

And I'm delighted that in case I really get into trouble, I can't deal with the questions or my slides don't help me, Janos Beer is here, my distinguished colleague, who is a member of our study group, who will help me out of the more difficult situations. But let me give you the context and a summary of where the study is to provide an opportunity for discussion.

I understand we have 30 to 45 minutes. Is that right, Madam Chair? If I speak too long,

cut me off.

So what has happened is that a group of MIT faculty became concerned about the energy future of the country and I might say of the world. And the principal item which made them concerned was the issue of global warming, where the consensus opinion, certainly the very strong opinion among knowledgeable people at MIT and in our study group, is that climate changes for real and somehow the world is going to have to deal with it, that's one aspect.

And the second aspect is a need to begin a transition, certainly a several decade long transition, many, many decades perhaps to make a transition for our economy from petroleum-based fuels to alternative energy sources. As we looked at this, as a faculty group, we decided that there were, you know, tremendous institutional, economic and technical hurdles and we decided to take on a series of studies to examine the future prospects of each of a number of different areas.

In 2003, we published a report in the future of nuclear power and this March we published a second report on the future of coal, which is what I'm going to speak with you today. The studies are supported by the Alfred P. Sloan Foundation primarily and I regret to inform you that one of our strongest members of our study group has now just been appointed president of the Alfred P. Sloan Foundation yesterday, so I'm not sure whether this means we'll get more money or less money, but it is foundation money. It's not Government money and there is essentially no industry money involved in it.

And as I say, we're going to later on go to renewables, energy efficiency, a whole series of possible additional subjects in the energy area. Well, we start with coal with the following assumption. Coal costs about $1.50 per million BTUs, depends on where you are, and it is plentifully available in the United States, in China, in India and Russia and Australia, in places where are not in the Middle East, not in

the Persian Gulf.

So this makes it an extraordinarily attractive fuel and a fuel which is going to be used, should be and will be used by the United States, by our allies and by many other people in the world. So it is essential to the energy future.

On the other hand, coal is the biggest emitter, well, not the biggest emitter, but it's a very significant emitter of greenhouse gas fuels, I guess, about 30 to 35 percent of it is attributable to coal or greenhouse gas emissions. So the question is what can we do about this to manage the immediate energy demands and worry about the role that coal will play.

We began our study with the use of a very interesting and elaborate MIT model on world energy economy, which has in it enough texture to differentiate industries as well as fuels, of course, and regions quite importantly. What we did is we said what would be the consequence? How would the world adjust to a significant charge on

greenhouse gas emissions universally applied throughout the world? What would be the consequences for the change in mixed fuels and the objective would be to try and stabilize greenhouse gas emission, CO_2 emissions by mid-century.

So the first thing we did is we took a worldwide view and said if you had an emission charge it could be acquired in tax, it could be a fancier cap and trade system, that's really not part. Second order doesn't really make that much difference. What we found is indeed a carbon charge which we looked at various different cases about how it might be imposed, would it be, could it be stabilized greenhouse gas emissions, CO_2 emissions by mid-century and the way the mechanism that takes place, and this is very important, there are three mechanisms which cause the stabilization of this, emissions of greenhouse gases.

The first is, of course, a reduction in energy demand, because the real price of energy goes up because of the carbon charge. The second

is a shift of fuels away from carbon, which fuels, such as coal to lower carbon fuels should they be available at the extreme case, for example, nuclear power. And the final case is the introduction of new technologies, in particular, carbon capture and sequestration, which allows coal to reintroduce itself in the -- into the world economy.

And I want to be clear that the biggest quantitative effect in reducing the emissions from businesses usual trajectory is, indeed, a reduction in all energy use for the price increase. And the second effect is at mid-century a shift to lower carbon fuels. And the third is the introduction of deployment worldwide of carbon capture and sequestration.

That's just a picture at mid-century. What I want to stress to you is at that moment, carbon capture and sequestration is being deployed evermore significantly, so there is a sharp increase in fact after -- during this period of time as carbon capture and sequestration gets

introduced into the world economy. So coal use goes up extraordinarily fast in the latter part of the 21st Century.

If on the other hand there is a carbon charge and carbon capture and sequestration is not available, that's the main point I want to make to you today, should Ms. Merkle or someone convince the world to put on a big carbon charge, what happens to coal use is at mid-century that is well below what it is today and it's headed towards zero.

So from the broadest view of the coal industry worldwide, surely the United States faces the following three options. If there is no carbon charge, which become progressively, I think, less likely, what we will have is a growth of coal by mid-century which may go up by a factor of our compared to today, 400 percent and over for a 30 or 40 year period. 43 year period, I guess.

If there is a carbon charge and carbon capture and sequestration is an available technology, coal use at mid-century is 30 or 40

percent larger than it is today, but increasingly rapidly at that point, because of the deployment of carbon capture and sequestration.

And of course, the worst case is if our policy makers here in area code 202 believe carbon capture and sequestration is a technical option that's available, but it isn't, then coal will get pushed out because of the progressively higher carbon charge and you will find that coal use worldwide continues to decline in this model, and I stress that it is a model. But it is important that it gives you very important linkages around the world, which I will come back to.

Okay. So the question then becomes how can you try and introduce today as quickly as possible carbon capture and sequestration as a technology option? Something which every person who I think cares about the future use of coal should say no matter what I think about a carbon charge, no matter what I think about global warming, I don't want to be caught in a situation where there is a policy measure and I don't have

this technology option. So what are the options with respect to carbon capture and sequestration?

And here again, I'm going to be very brief and I'm happy to go into this at any length that people want here. The first is that absent carbon capture and sequestration, we are big advocates, as you could imagine with Janos Beer being on our group, of pulverized coal, especially ultra critical, ultra-supercritical pulverized coal everywhere in the world.

The margin one pays for that is very small. The capital margin efficiency improvements are tremendous. As you all know, China is putting in about 90 large coal plants a year. India is putting in about 45. They ought to be ultra-supercritical pulverized coal plants and people don't appreciate how refined, how what a technically splendid instrument a modern coal plant can be and will continue to improve with very high efficiency.

The second case we looked at in some detail is integrated coal gasification combined

cycle. And here, we found that the cost of electricity differs on what we consider not an analysis which holds for every locality and every particular project, but on the basis of comparable set of assumptions that integrated coal gasification combined cycle is going to be more expensive for producing electricity in the absence of carbon capture and sequestration.

That is a highly unpopular conclusion, but one which we believe is the case. And of course, this depends upon where you are and especially on the quality of the coal.

Now, what if you look at carbon capture with those plants? We looked at two options in particular, oxygen fired pulverized coal plants and integrated coal gasification with carbon capture and sequestration. I want to make two points about this, two or three points. The first is on the basis of our engineering analysis, then when you design a plant, greenfield plant from scratch with carbon capture, the IGCC plant is going to be, it looks like, cheaper than on oxygen

fired pulverized coal plant with capture.

On the other hand, technology is moving sufficiently rapidly in both these areas and indeed other areas which I'm not going to address this morning, that we think it would be goofy in the extreme as many people seem to want to do now to pick a particular technology today.

I keep on saying if some smart young technical person figures out a way to separate oxygen from air, you'll reverse this in a heartbeat and pulverized coal will become oxygen driven and pulverized coal will become more attractive. So we are not for picking technology winners and we notice that much of the legislation and certainly the 2005 Energy Act did, indeed, suggest in the darling of the environmental community, if I may say, that IGCC is a preferred technology route to go today. We don't believe that.

The second point I want to make is we had a lot of analysis of the issue of building an IGCC plant today in a way that is either capture

ready or easily retrofitable for carbon capture at a future date when there are regulations. In our view, our very strongly held technical view is that's going to be quite a reach. But there is a widespread misunderstanding, not here in this room, about what it takes to retrofit a plant which was designed for operating efficiently without carbon capture to a plant which is going to work with carbon capture.

In our view, a plant which is designed with carbon capture is a very different plant from a coal pile to the turbines to the pressures to everything, and so the idea of retrofit and the idea of preinvestment in a plant to make it retrofitable at a subsequent date is unlikely to be a very attractive alternative.

The most important conclusion that we came to though is the following: We looked in detail at the carbon sequestration projects that are underway around the world, which are operating at a scale that could possibly be used as a good indicator for industry about how carbon CO_2

sequestration would work.

CO_2 sequestration sounds worse than it is. But in order to know whether it is going to work, we have to have some projects that demonstrate it in operation at a reasonable scale. The current projects that are around the world, I'll only mention four of them, the Weyburn Field in Canada, the Sleipner Field in Norway , In Salah in Algeria, not yet in operation, I think, and the Gordon plans in Australia.

All of these are projects which are at scale by which we mean 1 million tons a year; however, none of them have been designed to be CO_2 sequestrations per se. They are usually knock-offs of enhanced oil recovery. None of them have the instrumentation that we believe as citizens or as technical people and certainly as regulators would want to see in place for a sequestration project there.

For example, Sleipner has one indicator which is 4D Seismic. None of them have pressure, in place pressure sensors, temperature sensors,

chemical ph sensors and things like that which will tell you about the fate of the CO_2 in the ground. And most importantly, none of them have happened with an accompanying regulatory procedure which would assure that one knows how sites should be inspected, how sites will be operated and most importantly after a period of time where the responsibility for the liability of the site will shift from the utility or the company which injects the private firm which injects the CO_2 to a Government responsibility will ultimately over periods of many decades, it will really have to go in that direction.

Now, I'm a lot older than most of you here and have made many, many more mistakes than all of you here, but I spent a great deal of time in the nuclear waste management business when I was at the Department of Energy and the one thing I don't want to see is carbon sequestration go that fate, because we do small projects, one off projects, which do not carry with it a robust regulatory framework that will assure that if the

-- when the technology is demonstrated, we have a way of deploying it, making investments that will work for the industry.

Absent serious large scale carbon sequestration projects, the basis of our report, which is carbon capture and sequestration, is the way the coal industry should go for capturing CO_2 is simply a hope and not a policy. Now, I might say that today in the Congress there are many, many bills pushing carbon sequestration projects, all of them, in our judgment, or at least in my judgment, let me now reserve this to myself, are of a scale that are too small and do not have the structure to be convincing as a serious sequestration project demonstration.

So our first set of recommendations has to do with getting these carbon sequestration projects going three to five in the United States, maybe 10 around the world, different geologies, different coal types or initially the CO_2 could be purchased, it could come from a coal-to-liquids plant, which has certain advantages, but those

have to become first.

The second one is any Government assistance here in this coal area should only be provided to projects whether they are IGCC, whether they are retrofit projects, whether they are pulverized coal projects, whether they are other kinds of technologies, like fluidized bed, to those projects which will also do carbon capture, because we think that is a different ballgame. So we are also quite unpopular by saying that the provisions of the 2005 Energy Act, which extend to clean coal irrespective of whether it has got CO_2 capture are not the critical priority place to put public dollars. They should be for projects which include right from the beginning carbon capture and sequestration.

And we also are very much aware that technology is moving here and we are not in a position to fix technology. And indeed, there are many things that the DOE could do in terms of a common modeling and simulation base so as to improve the ability of the industry, both the

users of coal and the producers of coal to be better able to explore what the technology options are and guide both their R&D programs and their initial project investments.

And we certainly believe that Federal Government assistance is required, especially at a time when we have no concrete carbon emission charge policy, that it is very much ripe for there to be federal assistance to coal projects with carbon capture.

My last point, then I'm done, has to do with all of this depends upon the fact that it is a worthwhile public purpose for the world and the United States to stabilize the emission of CO_2. And our models are based that everybody does adopt carbon -- some kind of carbon emission controls at the same time, but, of course, we know that's not the case.

I happen to be among my friends one of the people who thought the President actually made a very good point and is making a very good point now today. The GA is probably drinking right now

in Germany, but I hope he is, about the fact what has to come first is some idea of a structure that is going to encompass India and China and the other big emitters, Brazil, Mexico, Indonesia or else we'll be doing something which constrains us and the Europeans and puts us at an economic disadvantage competitively and does nothing to improve the global climate, because, as you know, and I won't dwell on this, the increase in CO_2 emissions from China alone is going to be double the rate, triple the rate of the United States and exceed us in absolute abounds by, I think, 2007 or 2009 or something like that.

So absent some agreement about how to get the developing economies, the emerging, the big emerging economies to play in this game, we are really not going to by ourselves or by ourselves with the Europeans and the Japanese have any ability to improve.

Now, there are many different ways of talking about what the prospects of that are, but in brief the prospects are not good and there

certainly is no progress on the subject about how do you engage India and China in this. Chatting in Beijing at diplomatic meetings is not a way to get there. There are much more fundamental differences.

When I was in India in February, their minister of planning, who is their energy person, said to me our principle is that every person in the world should have a right to emit so many pounds of CO_2 per year. Now, that's, you know, interesting if you've got a billion people or a billion-three.

If you're only a modest country like us with a much bigger GD, so this issue behind all of this is this issue about how do you -- since our purpose is to protect the climate, that's why we're undertaking this, how do you get this? We don't have an answer to that. We're technical people.

Let me conclude by just saying the single most important thing that I would advocate, if I were a Member of this distinguished group, is

to say if you don't get some operating carbon sequestration projects at scale properly run, properly instrumented with a regulatory framework developing at its side, you are putting at risk coal in the most severe way.

That's the highest priority that I think this group should address. Let me stop there and I really welcome questions on any subject and I want to talk about anything you all do, and as I say, if necessary, I'll call on Janos Beer to protect me. Thank you very much.

(Applause)

CHAIRPERSON NELSON: Thank you. Yes?

MR. WOOD: Jon Wood with Foundation Coal. I think we all received quite well your emphasis on carbon capture and storage and the need to get on with that. One question I have about the study is I think some concerns have been raised that at the same time you put emphasis on some market mechanisms, a carbon tax or a cap and trade system, that some would argue will help spur the development of CCS, but others would suggest

in the near term it may actually create a disincentive and drive people to fuel switching, which lessens their incentive to invest in coal technologies, including CCS.

What -- how -- did you all address that conflict?

PROFESSOR DEUTCH: I don't understand it, sir. Please, help me.

MR. WOOD: Well, the idea is that if you put a carbon tax on and people start fuel switching to gas or nuclear plants, etcetera, there is less incentive then, there is less -- in the business community, there is less interest in developing carbon capture and storage for coal. And so that the two policies may be in conflict.

You identified CCS as being critical to the future of coal and if you believe coal is critical to the future of U.S. Energy Policy, that's one thing, but at the same time you are instituting policies which drive people away from coal and away from CCS investment.

PROFESSOR DEUTCH: There is no question

about the fact that a carbon charge will shift coal. There will be less coal used, less investments made in coal plants than if there was business as usual. The question is compare another kind of constraint policy to a carbon tax and carbon -- or a carbon cap and trade system. We believe that if the price goes up, that the new technology use of coal will become attractive, even in the presence of nuclear powers expansion, which is, let me say, dubious.

Natural gas isn't going to be cheap enough. We think that even at those prices, coal will do very well and eventually coal will dominate when carbon capture and sequestration is available, if it becomes so. So we think that this is the best way to go for introducing new technology. But the consequence that you will shift away from coal to other fuels is certainly the case, however, you constrain carbon emissions.

Yes, sir?

MR. ALTMEYER: Tom Altmeyer with Arch Coal. I appreciate all the work you and your

colleagues have done. Is it working? I appreciate all the work you and your colleagues have done and the insights you have provided. I happened to be at the Center for American Democracy last week and I was very heartened that you were there talking about reality to the basically environmental journalists, etcetera, on the need to use coal.

The world also faces a need to generate more energy. The United States has an acute need for more energy. Over the next 10 to 15 years, as carbon capture and storage is maturing, if you make construction of new coal contingent upon carbon capture and storage, you're not going to see new coal plants. Nuclear are not expected to -- at maybe the earliest 10 years from now.

Should we just be building more natural gas facilities in the interim until carbon capture and storage is available or should we just try to conserve and be more energy efficient? Have you given thought to that in your deliberations?

PROFESSOR DEUTCH: Well, you know, I

just was at a meeting with Jim Rogers, who is a Member of this group, who talked about the responsibility of a utility to produce electricity for its customer community and to do it in a way which doesn't have a lot of interruptions in it.

I think in this country we are moving toward a situation where people are saying it's just too hard. The generating electricity part is too hard. There is so much uncertainty, so much public policy uncertainty that investments aren't going to be made. The only kind of investments that are going to be made are low capital cost packaged natural gas, if the natural gas prices remain in sight.

So I must say, I mean, I'm not here bringing you great or good news, but I think electricity generation in the United States is in deep trouble. I don't see nuclear plants coming online as fast as I would like them. I certainly don't see coal plants. I wish I had a solution for you, but I do think we're facing that.

Now, that, of course, is not the case

in China, regardless of what they tell you at these Chablis and Brie parties that they have in Beijing, they are building coal plants as fast as they can. But for the United States, we've got a serious public problem about how to build generating electricity plants. So I agree with you, but I don't have an answer for you.

I certainly don't think that what the coal study at MIT says, we're saying how are we going to deal with the reality that's facing us, but I don't offer a solution to the problem you raise.

MR. LEER: Steve Leer with Arch Coal. In the study and as you deliberated on really the -- getting 10 major sequestration plants up and running worldwide, what do you figure the cost, the investment needed to really get that established? Is it a few billion a year? Is it more than that?

PROFESSOR DEUTCH: We just wrote a letter. Ernie Moniz was the co-chair of the study with me. We just wrote a letter to the Senate

Energy Committee taking kind of an outside number, the most it would cost including the purchase of the CO_2 to do it. So when you're taking a market price on CO_2 to do it, a million tons a year, over a 10 year period for a single project could be as high as $800 million.

Now, again, as a person who has spent a lot of the public's money in different jobs, you know, that's over a 10 year period, $800 million, to do it right. Now, all of the projects in legislation today do not talk about where the CO_2 is coming from or they, I think, really badly say well, we also have industry cost-sharing. We have to have industry cost-sharing for what is a vital public problem. I don't understand that.

I mean, if it was a technology matter, it's another issue. Here we're talking about an environmental control measure that is the sequestration part of speaking about that. So I will say to you that it is, in my mind, totally affordable.

You know, I just happened to see real

dollars spent on energy by the DOE over the last 30 years, to get back to my time period when I was undersecretary, I was spending triple the amount of money that they are spending today on energy R&D and things like that. So it's completely affordable and we don't have to pay for it all, except the projects in the U.S.

When I say there are 10 around the world, you know, other countries have to do their share elsewhere in the world, another job.

MR. LEER: I mean, I would agree if you sit there and think -- if you look at Gore's projections of doom and gloom and, you know, if you are saving the world a billion a year for 10 projects, it isn't a hell of a lot of money.

PROFESSOR DEUTCH: It's $800 million, right, exactly. A billion a year for 10 projects is not a lot of money. It is, in fact, excuse the expression, peanuts for the scale of this problem. And also from the point of view of what will happen if we get caught having a policy that assumes its existence before it has got the public

and confidence, the confidence of industry.

Thank you. Thank you very much.

CHAIRPERSON NELSON: Thank you very much.

PROFESSOR DEUTCH: See you in a couple of weeks. Thank you very much. Thank you.

(Applause)

CHAIRPERSON NELSON: Let's take a 10 minute break.

(Whereupon, at 10:37 a.m. a recess until 10:50 a.m.)

CHAIRPERSON NELSON: Okay. We'll reconvene the meeting. It is my pleasure to introduce our next speaker Bill Brownell. Bill has addressed this Coal Council on many occasions. His practice focuses on environmental litigation, regulation and counseling, including Clean Air Regulation. He is often here to educate us with his expertise about the matter and I would like to welcome Bill.

(Applause)

MR. BROWNELL: Thank you, Georgia. My

presentation sort of follows on the last one, because I'm going to talk some about the public policy uncertainty that faces coal generation. And in particular, I'm going to focus on a couple of things in the litigation and regulatory area. One is new source review and the other is the CO_2 carbon issue. And in each area talk about some of the implications for what's going to happen in the future with respect to the Supreme Court decisions that came out on the 2nd of April.

As you all know, coal has faced a lot of regulatory challenges, both existing and new plants. Existing plants through regulatory and litigation have faced a lot of scrutiny over the past decade. There has been a lot of talk about the need for new efficient coal generation. Yet, when you go and try and permit a new coal plant, that's pretty tough, too, it's almost gotten to be like permitting a nuclear plant with all of the issues that are raised and all of the litigation that results.

I think these two Supreme Court

decisions have some interesting implications for what the future looks like. And when I'm talking about the future, I'm talking the near term to intermediate term future with regulation and impacts on coal. Let me start with the environmental defense decision on new source review.

You know this whole issue is the modification question when an existing facility can be a coal generating facility or an industrial facility undertakes activity that makes it like a new facility, so it's got to meet all the new source control requirements.

And what this controversy really has been all about is whether you can maintain the efficiency, design efficiency, design reliability of existing coal fire generation or even improve efficiency without triggering new source requirements. Let's talk a little bit about what the decision said and what they didn't say and then about what the regulatory future looks like.

The environmental defense decision from

April 2nd, this is the actual holding of the decision. "The Court of Appeals reading of the 1980 PSD Regulations intended to align them with new source performance standards was inconsistent with their terms and effectively invalidated them. Any such result must be shown to comport with the Act's restrictions under judicial review of EPA Regulations for validity."

What does that say? Not a hell of a lot. This addresses one technical issue raised in an enforcement case about the major modification rule and how you do emissions increase calculations. There are lots of other questions that need to be resolved to know whether or not a project's modification is something that triggers application of new source control.

So the first point is that there is a lot still to be resolved with respect to the historic meaning of regulations. Now, there have been other courts besides environmental defense that have addressed this question. D.C. Circuit, for example, as you all know, the D.C. Circuit

vacated what was called the "Equipment Replacement Provision Rule." That rule that said we presume that any replacement project that's like kind and costs less than 20 percent of a replacement facility is routine and not a modification.

What did that court say? Well, it vacated the rule, but it said "We have no occasion to decide whether part replacements or repairs necessarily constitute a modification under the definition taken as a whole." What you see is the court's shying away from the ultimate decision, what's a modification, which leaves a lot of uncertainty, of course, regarding the historic meaning of the regulations.

The second part of these decisions, however, what does it mean for the future? What do these decisions say about EPA's authority at least going forward to provide some clarity? We know this area is a mess historically. There is the enforcement litigation. There is debate as to what the historical rules going back to 1980 and even before 1980 means.

But these decisions, both the D.C. Circuit and the Supreme Court has said things about the nature of EPA's authority and that's the next thing I want to address briefly.

Modification is a physical or operational change that causes an increase in emissions. None of these cases talk about what cause an increase in emissions is, but they also say that EPA has got very broad authority to define what an emissions increase is, even though there is disagreement about what the rules in emissions increase meant historically.

The D.C. Circuit, in this case, we call it "New York II," it's the case that vacated the Equipment Replacement Provision Rule said the word increases in the Clean Air Act is ambiguous and Congress' use of the word increase necessitates further definition regarding rate and measurement. Okay. EPA has got a lot of discretion to say what it means.

The New York I case, the case that upheld the current emissions increase test said

the same thing. The D.C. Circuit said that Clean Act is on how to calculate increase in emissions and EPA has got discretion to choose an interpretation to define the term in a way that balances economic energy and environmental considerations. They got broad discretion.

What did the Supreme Court say in environmental defense? "We disagree with the 4th Circuit and with the District Court on this technical point on increase for major modification purposes, but EPA's construction of modification going forward need to do no more than fall within the limits of what is reasonable as set by the Act's common definition of modification."

Now, why do I go through this authority question? There is important regulatory developments that are going forward at the Agency to provide some clarity on what happens when an existing facility undertakes activity to maintain its design reliability, maintain its efficiency.

And of course, as we have heard earlier on and as you see in the Coal Council's report,

efficiency is important from a carbon standpoint. Increasing efficiency of existing capacity and improving efficiency of new generation. In December of 2002, EPA issued one set of new source review reform rules that provided what's called a projected annual emissions increase test. And that's the test that people are using right now when they undertake repair and replacement projects.

For example, there was a controversy a number of years ago about Detroit-Edison's Monroe Station replacing turbine blades using much more efficient dense pack turbine package in order to increase the efficiency of the generating unit. And the question was does that project trigger major modification analysis?

In that case, it did not trigger, because there was no projected increase in emissions as a result of the efficiency improvement. It was a base load facility. It had been run traditionally as a base load facility, would be run as a base load facility in the

future.

So in that case, you saw an example of efficiency improvement under the reform rules in 2002 or at least a similar test not resulting in major modification, that's important from a carbon standpoint, that's important from maintaining the efficiency and reliability of existing generating capacity.

Even more important, there is another phase in the NSR reform regulatory development that's pending right now. There was a proposed reform rule back in October of 2005 and a supplemental notice on this proposed rule just came out this past summer and it would make very clear it would not eliminate the projected annual test, but it would make very clear that to trigger that projected annual test, you need activity that increases the fuel burning you are emitting capacity of the existing generating facility.

It would make very clear that activity undertaken to maintain reliability, to maintain efficiency, to even improve efficiency to deal

with things like carbon is not something that triggers new source review under the Clean Air Act. EPA in its regulatory agenda has this rule making schedule for conclusions some time later this year, but it is very important to provide this clarity and based on what the courts have been saying about the nature of EPA's authority, it's very consistent with going forward with this rule making.

So that's something to keep an eye on, because it's going to be important, not only from the Clean Air Act standpoint, but also from a carbon standpoint going forward to improve and maintain efficiency.

Let me move and talk a little bit about what I think is really the more significant issue or potentially the more significant issue right now. It is tied in both with the Clean Air Act, but it also has broader implications, and that's this April 2nd 5-4 decision in Massachusetts v. EPA dealing with the Clean Air Act authority to regulate carbon emissions, CO_2.

Now, this decision dealt with a whole bunch of technical legal issues, which are of interest to lawyers, not so much to this group perhaps standing. For example, the majority stretch to find standing for the States to bring this challenge by saying that States have procedural standing without meeting all the normal standing criteria. Though four Justices and a minority blast the majority over that. They found traditional standing requirements applying.

If you apply traditional standing requirements, there is no standing here. So that was the first part of the decision, very controversial.

Second, the question of air pollutant. Is CO_2 and air pollutant under the Clean Air Act? The majority said yes. An air pollutant is virtually anything which prompted an amusing footnote, a reverent footnote by Justice Scalia saying that under the majority's definition of air pollutant, anything that enters the air including frisbees and flatulents would be air pollutants.

A very broad definition of air pollutant.

Then the most important points come with respect to the Substantive Rule Making Petition. As you all probably recall, this case rose out of a rule making petition to set mobile source standards under Section 202 of the Clean Air Act.

And the third question in the case is what EPA had to do to deny that rule making petition. EPA went through a bunch of policy considerations and scientific uncertainty and said that for all of these reasons, it's not neither the time for us to regulate and we don't have the basis to regulate under the Clean Air Act, even if we do have authority.

When the court addressed EPA's denial of the rule making petition, they disagreed that EPA had relied on appropriate factors in denying the rule making petition, which prompted Justice Scalia and the Senate to say what else could they have said? They said everything that you could possibly have wanted them to say.

But the majority opinion said EPA must provide some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether CO_2 emissions endanger public and the health and welfare. If the scientific uncertainty is so profound that it precludes EPA from making a reason judgment, it must say so.

The court did not tell EPA it has got to regulate CO_2 under Section 202 or under any other section of the Act. It told them to go back and make an endangerment finding based on scientific uncertainty. It made very clear at the end of the decision we need not and do not reach the question whether on remand EPA must make an endangerment finding or whether policy concerns can inform EPA's actions in the event that it makes such a finding.

So EPA has got two questions on remand. First, is there enough scientific evidence for us to say endangerment or arguably they could say no scientific evidence, not sufficient evidence to say one way or the other. But if they do make an

endangerment finding, there is still important discretion with respect to the timing of any regulatory activity after that.

So based on that background, let's talk a little bit about implications and what happens on remand. This case will ultimately wind back up before the Agency and people at the Agency are working very hard right now on what to do, both under Title II of the Act and what implications this has for regulation of stationary sources under Title I of the Act.

The first thing EPA is going to have to do is to look at this endangerment standard from mobile sources under Section 202 of the Act. Section 202 authorizes regulation if the administrator reasonably determines that the air pollution in question will endanger public health and welfare and them requires him to set standards for motor vehicles, if he makes that endangerment finding.

From what I understand, the Agency is likely going to undertake a proceeding over the

next 18 months to determine whether or not to make that endangerment finding and whether or not to follow on that endangerment finding with some regulation of motor vehicles, either under the Clean Air Act or under the authority that the Department of Transportation has under the Energy Policy and Conservation Act.

So this is going to be a very important issue for a whole variety of reasons over the next 18 months for coal.

First of all, if authority is exercised under the Clean Air Act and CO_2 becomes a regulated pollutant under the Clean Air Act, there is a best available control technology issue that has to be addressed in the context of permitting new or modified facilities. That's the first important issue.

Now, in some permit proceedings we see out there already, and in particular in a recent one concerning the Holcomb Generating Facility in Kansas, there are public interest groups that are making arguments that CO_2 is a regulated pollutant

under the Clean Air Act merely by virtue of the Massachusetts decision. I don't really agree with that analysis. It's an air pollutant, we know, but it's not a regulated air pollutant until some action is taken to regulate.

But there is a big focus on new source permit proceedings right now and what needs to be done, from a control standpoint on CO_2, and we'll see that only get more intense as EPA moves towards some sort of regulatory decision under 202.

The second question and perhaps more significant question becomes what happens under Title I for stationary sources? The threshold for regulation under each of the Title I provisions includes standards similar to the endangerment standard. And the sorts of regulatory provision programs one sees under Title I are the Ambient Air Quality Standard Program, the New Source Performance Standard Program, even the Air Toxics Program.

You know, as you start looking at these

Title I provisions, it really brings home that the Congress was not thinking about regulation of CO_2 or carbon when they wrote the Clean Air Act initially, when they amended it in 1990, because none of these provisions fit the carbon issue very well.

Ambient Standards Program, what do you do with an ambient standard for CO_2? You put the entire country in non-attainment or do you put the entire country in attainment? It's a global pollutant. The concentrations are uniform. The program really doesn't make much sense when you talk about CO_2.

Section 111, New Source Performance Standards and Existing Source Performance Standards, what does that mean? What's best available demonstrated control technology for setting emission limitations for CO_2? Air toxics, why is CO_2 an air toxic? Those questions are the questions that are going to be debated and analyzed under Title I of the Clean Air Act over the next 18 months in the remaining term of this

Administration and probably into the next Administration.

We heard from the earlier speaker from MIT that a real danger on carbon is that we make decisions on technology and we freeze technology today. The danger of these existing Clean Air Act programs and authorities is that they are all about looking at the technology that's available today and making that technology choice now for an issue that really has to be dealt with in terms of decades, not months or years.

NSPS is best available, best demonstrated control technology. NSR is best available technology. We do the economy and the environment substantial harm by jumping to these regulatory decisions and freezing technology now. But that's what's at stake in this debate that's going on over the next 18 months.

The final point I would like to make about all of this is that we hear lots of things from the groups in the States that are -- pressed this litigation and pressed other regulatory

efforts at the State and regional level about the intent of all of this is really to force the Federal Government to get its act together and do something with respect to federal carbon legislation. Do something at the federal level.

Because I think everyone agrees that that's the way it needs to be thought about given a pollutant that -- or given a substance that's uniform in its concentration, that's emitted nationally, that's emitted around the world. You can't deal with it piecemeal, that increases costs and it, in effect, can work to the detriment of the environment by doing it that way.

But query, now that the cat is out of the bag here, whether you can put it back in. Congress' job became much more difficult because of the Massachusetts' decision, because there is going to be a debate that has to be resolved in Congress through legislative amendments that are going to address existing authority as well as potential new authority.

But it is going to be very important

that Congress think about all of these issues at the same time. What do we do to clarify the nature of existing authority or the lack of existing authority when we adopt any new program that's going to go to the future? What do we do with respect to State and regional programs? Do we preempt? Do we set standards for States and regions to follow through on those programs?

How do we make sense of this tremendously complex issue, so anything that is done is cost effective and is going to help the carbon situation? We've got a tremendously challenging regulatory future, legislative future as a result of this and some very significant developments will confront us over the next 18 months. Thank you.

(Applause)

CHAIRPERSON NELSON: Lots of time for questions.

MR. PALMER: Good job. First of all, we have -- we now have a law and we have an Agency.

MR. BROWNELL: Yep.

MR. PALMER: And there is one school of thought that says maybe that's okay. And backed principles applied today would not require any sequestration, even if there is an endangerment finding, as I understand backed, but that's not the question.

The President signed an Executive Order to implement, in part, due to the Supreme Court decision with respect to autos and I believe the gist of that order is to take his alternative fuels goal, 35 billion gallons a year, I think is right.

MR. BROWNELL: Yeah.

MR. PALMER: And basically to tell EPA working with the other agencies that have jurisdiction over such matters, including DOT, to come up with rule makings to implement that and that is in partial response to that, as I understand it.

In the order, alternative fuels are defined by reference to th 2005 Energy Policy Act,

which includes coal-to-liquids.

MR. BROWNELL: Right.

MR. PALMER: And coal-to-liquids with carbon capture and sequestration in biomass coal firing gives a better carbon footprint than anything you want to compare it with and particularly diesel versus gas.

MR. BROWNELL: Um-hum.

MR. PALMER: So is there an opportunity in all of this, with respect to EPA, to advance coal-to-liquids as, and particularly diesel, an alternative to gasoline produced from imported oil?

MR. BROWNELL: The easy part of that is -- answer to the question, is there going to be an opportunity? Yes, there will be an opportunity, because this is going to be a public proceeding with opportunity for comment and debate over the next 18 months to implement the Clean Air Act authority and/or the Department of Transportation authority pursuant to the Executive Order.

And, you know, as you recall in the

Executive Order, it stresses that economic cost effectiveness energy principles are all very important to this. There are a whole range of options that might be considered for motor vehicle regulation from simply CAFE type approach, you know, improving miles per gallon, to alternative fuels approaches.

But, yes, Fred, it's all going to be on the table and I think it's important that the analysis that's contemplated by the Executive Order consider all of those options.

MR. PALMER: Okay.

MR. BROWNELL: Other questions? Paul?

MR. CICCIO: Bill, thank you very much. The Supreme Court decision injects more uncertainty into coal fired power plants. And my question is, you know, what -- 18 months is a long time and how is that going to change the probability of increased permitting or increased action on the part of electric utilities to move forward with permitting of coal fired power plants?

MR. BROWNELL: All right. There is a tremendous demand for additional generation around the country and, of course, there are many permit proceedings either pending or anticipated as a result of that coal generation. This is another issue for those permit proceedings which we're seeing start to play out. How it's going to play out, for example, in this Holcomb case in Kansas, where the intervenors are very much focused on how do we -- what do we have the plant do with respect to carbon?

And in that case, they are asking for best available control technology and have ideas about what that should be, including building alternative facilities, such as IGCC. And I questioned whether that is backed. As Fred commented, when you look at the backed criteria and what is available today, you know, there is really nothing that you define as backed.

But the problem and the uncertainty is that until there is some resolution of that and resolution is going to take administrative

proceedings and litigation, that it remains an uncertainty.

So what I tend to say when talking to people about the implications of some of the recent developments for permitting new generation is that new generation is going to be built. It's going to be permitted. It's just going to take more time and cost more money to do it. And that's unfortunate for a whole number of reasons.

CHAIRPERSON NELSON: Thank you, Bill.

MR. BROWNELL: Okay. Thank you, Georgia.

(Applause)

CHAIRPERSON NELSON: Thank you, Bill. John Ward serves as Vice President of Marketing and Government Relations for Headwaters Incorporated. Previously, he was the Vice President of Marketing and Communications for ISG Resources, Inc., America's largest manager marketer of coal combustion products. John, welcome.

MR. WARD: Good morning. I'll be

speaking today and give you an update on the coal-to-liquids front which is receiving really an unprecedented amount of attention inside the Beltway now. Those of us who spend too much time here are never quiet sure how much of it is leaking out into the rest of the country. But we have over a dozen bills containing coal-to-liquids incentives in play on Capitol Hill right now and it's attracting an extraordinary amount of attention.

And inasmuch as this represents a potential totally new opportunity for coal in this country and we're looking at it now for really the second or third time, we thought it would be good to go through it and make sure that you are all aware of the things that are in play here.

We're going to move through these slides very quickly, but you'll have copies of these afterwards. I've included both the lower division and upper division courses in coal-to-liquids here for you. And, of course, some of the CTL 101 things are going to be very familiar to a

lot of people in this room, but there is also a lot of uncertainty amongst people you will talk to about what coal-to-liquids is, so we felt it would be a good idea to give the basics again.

There is only two slides in this whole presentation worth remembering and this is one of them. So the opportunity for this is the poly-generation opportunity. If I take a ton of coal and I gasify it and I use all of the same gas to produce electricity, which is in the pantheon of energy products, the lowest value products, I'm going to get about $120 worth of value out of that ton of gasified coal. That's the IGCC model, basically.

Now, if I take that ton of syngas and decide to do other things with it, make some electricity, but also make some higher value liquid transportation fuels, I can increase the value coming out of that ton of coal. I go all the way to a true poly-gen, I make some fuel, I make some power, I make some chemical feed stock or mononitrate fertilizer and that kind of thing,

I can get over the -- double the amount of economic value out of that ton of coal than I can just burning it to make electricity.

So the question is if there's all that value locked up inside the coal, how come everybody is not doing the thing on the bottom right now? And that is the commercialization gap that we find ourselves at that we will talk a little bit about more now.

There are three basic ways. Well, there's two basic ways to do coal-to-liquids. There is indirect coal liquefaction and direct coal liquefaction. Indirect, because I go from a solid to a gas first and then to a liquid, so it's indirect. Direct coal liquefaction is a technology that takes it directly from the solid to the liquid state. There is also some work going on now on a hybrid that combines elements of both technologies, both core technologies.

In the direct liquefaction process, you're basically pulverizing the coal, mixing it with a heavy resid and under temperature and

pressure, you are forcing more hydrogen into the coal molecules and breaking it down into basically a synthetic crude that you then further refine, just like you would a petroleum product.

One of the key things, I'm sure you will all remember this slide, to keep in mind on this one is that the direct coal liquefaction process needs hydrogen. All right. The direct coal liquefaction process was invented by the Germans back in 1917. They used it to produce aviation fuel during World War II.

The United States spent $3.5 billion improving this technology during the 1970s. And the pilot work was done on this facility in Lawrenceville, New Jersey, which is now a Headwaters facility. It was scaled up to demonstration scale in Kentucky at 1,800 barrels a day and then the OPEC crashed the price of oil and we decided to walk away from it.

This technology has been licensed to China and Xianhua Corporation is now the plant on the right, the first 17,000 barrel per day, this

will be the first commercial scale demonstration of the direct coal liquefaction technology. That plant is under construction and scheduled to open in late 2008.

The indirect coal liquefaction, again, the front end of this thing is everything that you already know about an IGCC plant. All right. You gasify the coal. You also make some power, but instead of just making power, you also take carbon monoxide and hydrogen from that and through a process called Fischer Tropsch, the catalytic process, you convert that carbon monoxide and hydrogen into liquid fuel feed stock.

An interesting thing about this process, you produce a lot of steam in this process and you actually produce some excess hydrogen in this process. This was also invented by the Germans, this is where you get the term Fischer Tropsch, Hans and Frans, that's my Saturday Night Live joke. Fischer Tropsch invented that back in 1923. The Germans used this to produce diesel fuel during World War II.

And this is a technology that South Africa currently uses to produce 150,000 barrels a day of liquid fuels from coal. If any of you have ever flown to Johannesburg, the plane you flew back on was fueled with aviation fuel made out of coal. So if anybody tells you this is still a science experiment, encourage them to fly to Johannesburg.

An interesting historical satellite, it was actually scientists in the Manhattan Project after World War II who were dispatched to Germany to collect these technologies and learn more about them, brought them back to the United States. We were actually on our way the first time to deploy Fischer Tropsch technology in the early '50s.

The plant on the bottom there is a plant run by one of our predecessor companies from 1950 to 1955, ran, you know, at that point, producing liquid fuels using the Fischer Tropsch process. That plant shut down when cheap oil was discovered in Saudi Arabia.

We got ready to do it again in the '70s

during that energy crisis and then it crashed the price of oil and we got -- this is actually our third bite of the apple for this technology. The question is whether we have the will to go through with it now. And you heard earlier speakers this morning question, you know, what are oil prices going to be in 30 years, that is one of the reasons on that first slide, the only one worth remembering, not everybody is doing the highest value application for coal.

We will take a quiz on this one at the end. Bottom line of this comparison of products that come out of direct and indirect, the bottom line, direct makes a really good gasoline, not such a good diesel fuel. Indirect makes a really good diesel fuel, not such a good gasoline. So there's some synergies in that process. Both of them from an environmental standard are extremely clean fuels. These fuels are much cleaner than the fuels that come out of a traditional petroleum refinery today.

This is the hybrid concept again

because you've got efficiencies, indirect mix hydrogen, direct needs hydrogen, indirect mix steam, direct needs steam, direct makes good gasoline and indirect makes good diesel fuel. This is the design for a hybrid project that's currently in front end engineering design for a project that going on in the Philippines that would combine elements of both technologies. And we think if there really is a coal-to-liquids industry from now, these are probably the kind of plants that people will start building.

Nobody is going to build one of these today in the United States though, because the technology is not commercially proven. You can't get a bank DV loan for it.

So just a profile of a plant. These are big facilities. This would be a 40,000 barrel a day plant. You're talking about 8.5 million tons per year of bituminous coal feed on that and you're talking about closer to 12 million tons a year of the low rank or lignite coal feed for these. These are very large facilities.

To give you an example of this, we get thrown into biofuels, I'll give you an example of scale comparison. Our company just opened its first ethanol plant. We built an ethanol plant right next to a coal-fueled power plant. We use the waste heat from the power plant to drive the ethanol production process.

50 million gallons a year production, which puts it in a class of big ethanol plants. From the time we decided to do it to the time we turned it on was two years. It cost $100 million to build. We passed the hat to a bunch of banks in North Dakota and Minnesota. They were more than happy to give us the money, because they had all loaned money to ethanol plants before and knew somebody who did.

This coal-to-liquids plant, we will spend two years just in the front end engineering and design and we will spend $50 million just in the front end engineering of the design with no guarantee that that plant will ever get built. The cap X is going to be closer to $3.5 billion.

The construction time is going to be 5 to 7 years with all the permitting and everything that gets done. These plants are orders of magnitude larger than what you are hearing about in the ethanol and the bio-diesel world.

Why are we interested in it? The President said we're addicted to oil. Worldwide demand is going up. One of the reasons why a lot of us think that we shouldn't worry so much about where oil prices are going to be in 30 years is because the dynamics are entirely different today, than they were in the 1970s. Whether you believe in peak oil or not, it's unquestioned that the oil that is available out there is getting thicker and more expensive to produce.

And the other elements that exist today that didn't exist 30 years ago are things called China and India. And when you look at what's going on in the demand for energy products there and the competition that that's going to create, we are looking at a higher energy price environment going forward and that's one of the

reasons we should be more confident in looking at coal for these types of developments.

The other reason a lot of people are interested, frankly, is that 90 percent of the world's oil resources are held by national oil companies or by cartels and most of those folks don't necessarily like us and don't have any obligation to play fair in that pricing environment. So this is a powerful reason for the United States Government to step in and provide some incentives to level that playing field and provide some certainty on the price going forward.

Potential projects going all over the world. The -- mainly where the coal is. And the projects in India and China are moving much faster than the projects in the United States. Of course, South Africa is the leader. They get 30 percent of their liquid fuel needs from coal-to-liquids today and they are looking at expanding that capability.

The projects underway in all of these international locations, I'll spare you the

commercials for where Headwater is doing it, why are we interested in the United States? You have all seen this chart before. Go ahead and pick your favorite state and say X is the Saudi Arabia of coal. All right. So more BTUs in the coal in Montana than there is in the oil in Saudi Arabia. So this is what we have. And I guess I don't have to tell that to this group.

And the reason why you use it, you see that blip in consumption back there in the 1970s? That was our little oil crisis. This was when OPEC made a bet. Well, you know, we'll take a loss on this stuff for a little while to drive out the competition. It was a pretty good bet, because if you look at the difference between the red and the blue line in the '70s and the difference between the red and the blue line today, we're more dependent on foreign oil today than we were at the last energy crisis. And all of the production and use projects from here show that situation just getting worse, not getting better.

This has been a really cheery meeting today, hasn't it? Why is there a growing interest in the United States? Well, we've talked about it. There's a couple of great reports. This body produced its report last spring on the issue, which is very helpful. The Southern States Energy Board produced their's last spring as well. There's links to both of those reports here in this.

There have been public or private interest expressed in coal-to-liquids development in all of the States that are listed on that slide. There are none of those projects actually putting steel in the ground yet. All right. This is a very formative stage.

Just an example of a project, this is one that we're involved in in cooperation with the North American Coal and Great River Energy, American Lignite Energy, this is typical of the kind of plants that are being discussed in the United States today located in North Dakota. You've got plenty of coal there. We've sized it

at about 32,000 barrels a day. Capacity we've got $10 million in funding support from the State of North Dakota to help work on the front end engineering design activities.

Carbon capture for enhanced oil recovery is anticipated, also have a nice little power plant attached to it, about 10 million tons of coal consumption a year and $3.6 billion cap X. Again, a big project in the early front end engineering design stages now. Will it get built? I don't know.

It goes back to that original question, doesn't it? Why isn't everybody doing the thing that's on the bottom of that first slide, the one worth remembering. This is a big and it's the most confusing chart, but it's the only other -- it's the other one of the two that's worth remembering. So I'll explain it.

The question that always come up is what point are you competitive with oil prices for this? And so what this chart does is the different colored lines show different oil price

points. So if you are dealing in a $40 oil price environment on the bottom line or whether you're dealing in a closer to $70 oil price environment on the top line, which is where we are today, what is your internal rate of return on these plants going to look like?

Now, this assumes no -- this assumes a 70/30 debt equity ratio, which means you can go out and borrow 70 percent of the money, which is not a given right now, but no federal subsidies. And you see the break even point for a 10,000 barrel a day facility, which is about as small as you can go and call it commercial really, is about $40 a barrel. And you see as the plants get bigger, they make more money.

So if you had a plant operating today, you know, which would be -- and say the one in North Dakota 32,000 barrels today, oil prices at $62, you would have a 22 percent rate of return, which is not bad and no federal subsidy to help you do that.

Now, when we go to Wall Street and

explain this, their question is yes, but what's the price of oil going to be in 12 years when you are paying back the loan? All right. That's the issue.

This also does not include the cost of carbon catching and sequestration. And as we will discuss in a minute, that's going to be a requirement on any of these plants. Every CTL developer I have talked to is anticipating that they are going to be doing it as part of their project and it's probably going to add another 5 or 10 bucks to the break even point on this chart.

Quickly on the environmental. You know, I'm going to start a cable TV network in Washington, D.C. It's going to be the climate channel. We're going to have -- actually, we'll probably need two of them and we're going to sell lots of ads. It's going to be all climate change all the time. And we will fill it up. There's like four hearings a week on Capitol Hill right now. I don't think you could pass a school lunch bill without assessing the carbon impacts of tater

tots.

But one of the key environmental factors that gets lost in this is the clean fuels nature of these products. All right. The fuels that are made through the CTL process are exceptionally clean. You are talking near zero sulphur. You are talking lower knocks. You're talking higher energy balance. You're getting more efficient use out of the engine. You're talking lower particulates.

And all of the criteria pollutants that people used to care about, this stuff is superior to the petroleum derived fuels that we use every day. All right. Let's not forget that, okay, because -- just because all we want to talk about today is carbon, let's not forget that we have this advantage to these fuels.

Now, answering the carbon question. If you do CTL and do not capture and store the carbon, yes, that is worse than petroleum fuels from a carbon emission standpoint. However, if you capture and store the carbon, on a life cycle

basis, on a well-to-wheels basis, the coal-to-liquids fuels are at least as good or sometimes better than the petroleum derived fuels that there are now.

And there is ample additional scientific evidence to strategies like co-gasifying biomass in the process can allow you to substantially decrease that carbon footprint below what we are already doing now with petroleum derived fuels.

But, you know, that's coal, folks. Let's not forget that the reason for doing coal-to-liquids in this country is not to solve the climate problem. We need to deal with the climate problem responsibly. But the reason for doing this is energy security. The reason for doing this is to make our nation less dependent on foreign oil and to make our refining base more diverse and less susceptible to disasters associated with terrorism or hurricanes or other things like that that happen.

Just to hit a couple of these, you

know, these are the four main areas that the energy security think tanks focus on when they talk about energy security. You know, you want to stay up at night. You know, 67 percent of all Saudi oil output goes for a single facility. There is a sulphur tower facility that takes the sulphur out of this gas that if it is put out of commission, that facility would be out of work for a year.

All right. And so, you know, I'm a dummy sitting at the Pentagon one day saying well, gee, what if somebody flies an airplane into it and, you know, the guy looks across the table and says airplane, you know, give me a crew of competent 19 year-old mortar operators and get me within three miles of it, you know. They have repelled three attacks at the facility in the last two years.

So, you know, we're in a precarious situation in this in our world today. But let's answer the last -- let's answer the question asked first to wrap this up. If this stuff is so good,

how come everybody isn't doing it?

Well, you know, there is your reasons. Number one, these things are big. They cost a lot of money. You all in this room know how hard it is to build a traditional power plant that costs a few billion to build and get all your permits and all of those kind of things and those are plants that people are used to building and plants that Wall Street is used to financing.

All right. Which takes us to the second thing. We have to raise the money for this in private capital markets and they are concerned about, number one, the technology, even though the South Africans have been doing it for 50 years, you know, it's the phenomenon. Everybody wants to be the first person to build the fifth plant. All right. Those of you who have been dealing with IGCC understand that.

We have the same thing going on here and then there is the market price risk associated with oil. Will it still be $60 oil in -- you know, when it comes time to pay back this thing.

And then it's -- then there's some market inertia here. I mean, it's in nobody big's business model to do these things. The oil companies could put these up tomorrow. There are at least three oil companies that own coal-to-liquids technology stuffed back in the filing cabinets that could put it up tomorrow, but they have no -- why would they want to create a competitive industry for themselves when they are doing quite well at the moment. Thank you.

You know, utilities, you know, have large balance sheets. You know, you guys are having a hard time getting your PSE to let you put an ECC plant into place. You know, how are you going to convince them now that we're going to become a fuel distributor, too. Smaller companies like Headwaters or Rentech or Syntroleum or some of these others, you know, they may have an interest in disrupting an industry, but they don't have a balance sheet big enough to do it. So this is what's keeping coal from getting the full value.

Big projects, lots of things that are needed in there, more background on the kind of steps you have to go through to get a big project off the ground, it's going to cost you $50 million to do it. The bottom line is there is a huge effort right now on focusing on what can the Federal Government do to jump start the industry?

And the States are ahead of the Federal Government in this regard. A lot of the States are looking at putting in CO_2 pipelines to enhance the ability for carbon storage. You've got feed grants and other things like that going on in the States.

On the federal level, the National Mining Association has spearheaded a coal-to-liquids coalition. That coalition includes all the coal producers, all the CTL technology providers. It has networked in a number of the major user groups, the air transport people, the motor carrier people, the railroad people, the labor unions are all in this now. There is a half a million dollars worth of ads running inside the

Beltway supporting coal-to-liquids to correspond to the, I don't know, million dollars of environmentalist ads that are going against this.

And there is a list of incentives that are represented in these dozen or so bills that are in play right now on Capitol Hill. And a little more background if you want to know what those different types of incentives would do.

The bottom line is, you know, energy legislation is moving as we speak. In fact, it will probably be on the floor at the Senate next week and CTL has been front and center in all of this. They have had bipartisan support. You've both democrats and republicans who are both looking at this. I can tell you right now that carbon capture and storage will be a requirement for anything that gets passed in this Congress for incentives and just what that requirement looks like is something that is being discussed right now.

The policy concepts to watch, you know, the extension of the excise tax credit. We've got

the ethanol industry started. There is a major priority here getting the Department of Defense in a position where they can buy this stuff in long-term contracts, is a major push. And the other one is what kind of mechanisms can we put in play to alleviate that price risk?

In other words, if the price of oil goes down in the future, can the Federal Government step in and make the industry whole, so that we can give Wall Street some assurance that they will get paid back if we get there?

My take on this, we will have a coal-to-liquids industry in this country. It's not a question of it, it's a question of how fast. You know, if the Federal Government does nothing, Rentech will open their 1,800 barrel a day facility in Illinois in the next couple of years and then one of these 10,000 barrel a day projects will get off the ground in North Dakota or Wyoming or maybe West Virginia and it will run for a little while. And then the next bigger one will get built. And over a long period of time, this

industry will evolve just as a natural response to what's happening with energy prices out there.

What the Federal Government can do from an energy security standpoint is step in with some of these assurances and compress that time frame. All right. Get us to say look, we don't want to wait for the next hurricane. We don't want to wait for the next terrorist attack for oil prices to go above $100 before we have to act to do something. Let's step in now and provide some of these assurances, so we can get more of these plants built quicker, get across that commercialization gap and get this industry started.

So, you know, it's time to build. It's time to use an American resource to create American jobs, keep American dollars here at home, use the American resource to develop a clean burning fuel that works in the existing fleet. All right. This is gasoline, diesel fuel, jet fuel, it goes into the existing engines with no modifications to the existing distribution system.

This is the Today-Gen equivalent to the FutureGen of whatever we decide to do with hydrogen or say ethanol or that kind of thing. So with that, I'll wrap up.

CHAIRPERSON NELSON: Thank you, John.

(Applause)

CHAIRPERSON NELSON: Thank you, John, very much. I'm afraid we don't have time for questions for John. I'm sure he will be around if you would like to catch him after the meeting.

At this point, it's really my pleasure to introduce Mike McCall, who is Chairman and CEO of TXU Wholesale, but importantly, is Chairman of the Study Work Group that will be presented the National Coal Council report to you today. This is a critical piece of business for the Coal Council and I would like to, as Mike comes up here, say thank you, Mike, for a job well done. You all have a copy of the report in front of you and to your work group as well. Mike.

(Applause)

MR. McCALL: Thank you, Georgia. I'm

really just here as a representative of the group that undertook this study. It was a tremendous group and I'll have a few more things to say about that in a moment or two in a slide or two. I would ask you to look at the front cover that's before you at your desk. I think we have provided copies for everybody and just point out a couple of things to you.

Those of you that remember your chemistry class, you'll remember that the depiction there is the CO_2 molecule. It has the coal. Mike Mudd, I know was here earlier, I don't see him in the audience now, but we stole the picture of FutureGen as the picture of the power generation station and obviously that power flowing to a home.

And the other thing I would point out from the cover is in the small font, we did depict this as a study that really is going to seek to help all of us understand better this evolution toward a near zero emission coal producing or coal burning power plants. And I think that's -- I

really thought it was appropriate to put that sort of commentary in the cover.

The industry has made great strides really since the 1970 Clean Air Act to continue on an ongoing basis to clean up the emissions, improve the air quality and production and efficiencies. And I think what this study attempts to do is really speak to technologies that are going to continue that evolution.

All right. If I could go to the second, what is the right button to push, I wonder? There we go. On the inside cover of the presentation, we put some key thoughts. And I couldn't help but think about this cover as Paul was speaking this morning, this inside cover, these -- this commentary. And you might think it may be strong to say that coal must continue its vital role.

And, Paul, I've been out on this speaking circuit for the last year and a half making a speech similar to your's. You know, across this country we have built 300,000

megawatts of gas powered generation over the last decade. It is the single reason that we have higher electric prices, higher gas prices in this country.

And I have been out saying, and I want to change what I have said, that if you care about energy security, if you care about energy independence, then you want to find ways to make coal usable in a fashion acceptable to the public.

And I think we need to add to that if you care about American workers and you care about American industry, and I think those need to be added, because as you have so aptly described today, this is a real important piece to the American economy. It's real important to the American workers that we solve this problem and we find ways to use coal in a manner that is acceptable to the public. I think we can and I think we have a lot of education to do and a lot of technology development to get that done.

Let me go on to this next page. Now, I went backwards. We have -- we just included -- I

only put this in there for a couple of -- for really one or two important reasons. This whole study started with a letter from the Secretary to Georgia asking this be conducted. And the reason I put this in here is really just to note that this study follows on some real important work that Fred Palmer and Greg Boyce led in the last study really depicting how coal can be used in greater amounts and to greater support of our economy. And this was a follow on to that study and other previous really quality work from the organization and the Council.

Importantly, this was a study that involved a lot of people and as I said at the outset, this is something that I certainly can't take very much credit for. It's really the people that you see pictured here that I want to recognize today. It's great -- as Bob Kane and I were talking this morning, it's a great diversity of engineers, scientists, folks from academia, folks out of our -- out of the industry.

It's a great representation, but,

particularly, I would note for each of the chapters, you will note at the end of each chapter we recognized those that contributed on those particular chapters, but the chapter leaders who really helped assemble each chapter, I would like to recognize.

The first chapter was led by Fred Palmer that looked at the whole context that we are operating in. Dave Stopek led the second chapter looking at the technologies for capturing carbon. Tim Considine from Penn State University, the next chapter on carbon management for coal to products. Nancy Mohn from Austin did a great job leading the chapter on CO_2 capture and storage.

Stu Dalton from EPRI, who is not with us today, a great contribution on the technology profiles and the trends of technology. Frank Burke from CONSOL leading the chapter discussing all the different groups that are engaged in the technology development. And then finally, Connie Holmes from the National Mining Association leading the chapter discussed, the Energy Policy

Act of 2005.

Importantly though, I would like to also recognize Bob Kane from DOE for his help, Bob Beck from the Council along with Larry Grimes, they were great coaches as the team went through this effort. And then lastly, Roger Knipp from our TXU group. Roger is with us today. I would like to give all these folks a round of applause.

(Applause)

MR. McCALL: Tremendous work. On to some key messages that we really see coming out of the study. The coal industry really, I think, stands ready to tackle this issue of carbon dioxide. And we do it from a real strong footing. We started with the Clean Air Act signed many years ago. We have made tremendous progress on removal of fine particles, sulphur dioxide, nitrousoxides and today we're solving the issue of mercury emissions. And I think that's the work we can do around CO_2 can follow those strong steps of our past.

I think it is important to recognize

that the technologies to reduce carbon are still in their early stages of development and are going to need significant support, just as the -- our fine speaker this morning from MIT said, I think one of the serious conclusions out of the study is that it is too early to pick any particular technology winners.

And I think it also is worth noting that we can't pick a winner, because different coals, different locations, different geographies are going to need different applications. And so we're really going to need a broad spectrum of technologies. And then for these technologies to move into the main stream, the nation is really going to have to act now to make it a reality.

We made some specific recommendations in the report. You will see those in the executive summary. And we made those recommendations on the basis that we think the U.S. Congress will adopt CO_2 mandates at some point in the future. We did not spend any time trying to argue, discuss or conclude as to what

the U.S. Government ought to do or when they ought to do it, but we made an assumption that at some point in the future, there will be carbon mandates.

And on that basis, we think it's timely that we go out and accelerate the deployment of new technologies to improve the efficiencies of all types of coal generation, as the good professional from MIT thought this morning, that we accelerate the development and demonstration of deployment of CO_2 technologies for capture and storage and that we recognize and really as I think the -- again, as Dr. Deutch talked about recognize that as we think about mandates, we have to do it, those mandates need to be aligned with the commercialization, the availability, the affordability of those technologies.

We really, I think, would be doing a real serious damage, Paul, to the U.S. economy if we were to adopt mandates ahead of that technology development. And if we don't fund the technology development, but yet we adopt mandates that are

not yet achievable, that would be a serious consequence for the country.

Specifically, and I took some liberties to just sort of boil down for you today, some of the recommendations. I consolidated some just to highlight some of the recommendations that are in the report. We are strongly recommending that the DOE work closely with other agencies like the EPA to streamline the permitting processes, so that companies can get on with adding new equipment to improve the efficiencies of power plants, build new power plants, some day install CO_2 reduction equipment, all in the spirit of streamlining that, so that we, the country, can really get on with the notion of reducing these emissions.

Today we have a lot of competing regulations. You heard Bill talk about it this morning that I think and I think the industry believes are standing in the way of environmental improvements. So we have in some cases, and it's sort of sad to say, environmental regulation that stands in the way of real efficiency improvements,

real environmental improvements.

And so what we are suggesting to the Department is that they really take a concerted effort to work with other agencies to help streamline those. In some of the early press reports, I saw some notion that the report was suggesting that this report was going to suggest that we do away with NSR. I don't think you will find that in the report at all. That's not what was intended.

It really is asking the Federal Government agencies to work together so that the industry can go out and make the kinds of improvements that the public is asking us to do.

Similar to Dr. Deutch's comments, we think, and you will see a number of recommendations around carbon capture and sequestration or storage, that work needs a lot of our research development, deployment and so you will see a number of recommendations around carbon capture, including the regional organizations that Secretary or Department Assistant Secretary Sell

talked about, but around carbon capture, around compression, around transportation of CO_2, storage, monitoring, all those things you heard in prior discussions this morning show up in the report.

Thankfully when the good professor from MIT comes, Janos, and suggests that that is something desperately needed, I was glad to sit here at my table and think well, it's good, our report is aligned with his thoughts. And then next, we have had a lot of good work going on in FutureGen. Hopefully, the FutureGen Alliance will be selecting a site later this year.

We think one of the things that would be of strong interest to industry would be to think about a demonstration project that would be around an ultra-supercritical or an advanced ultra-supercritical pulverized coal plant. I think as was discussed earlier today, some people, I think, had come to the view it has been broadly expressed in the media that there is really only one answer long-term to coal use and that's

through an IGCC plant.

I think one of the things that the report really comes to, a conclusion the report comes to is that's probably not the case. That's probably, in terms of picking winners, not the case, but there is great promise for advanced ultra-supercritical pulverized coal plants with high efficiency in terms of something -- a promising technology for the country.

And so we would suggest to the DOE that we think about a corollary project, particularly focused on getting the necessary alloys developed and the components developed that can withstand the high temperatures and pressures needed to achieve those efficiencies and low emissions.

The other thing that I didn't include in my quick summary, but I think it's important to note is the Secretary explicitly asked that we think about a framework of technology development. And you will see that as you read through the executive summary. There is a discussion of framework.

And as we note in the executive summary, it's a framework that is simple, but it's difficult. And the framework really goes something like this. In the near-term, as was discussed earlier by other speakers, we ought to focus on efficiency improvements. We ought to focus on public policy initiatives that allow efficiency improvements to happen, so that we can make those adjustments in power plants, both new and existing, particularly.

In the midterm, we ought to have strong public policy support for new advanced clean coal plants, both IGCC and advanced supercritical or ultra-supercritical. And in the longer term, I think the thing that we see and as other speakers have said this morning, longer term, we're going to have to put much focus on carbon capture and sequestration to really resolve all those issue that Dr. Deutch talked about this morning.

That concludes my brief summary of what we have done. I would just take a moment to remind the chairs that are here today, the section

or the chapter chairs, we are going to have a meeting, I think, formal Q&A session with the media afterwards and I would like everybody to stay that was -- participated in that fashion to answer all the hard questions, because you're going to be better prepared to do that than I will be.

And so if you will do that, that will be greatly appreciated. And as Roger was thinking -- as Roger saw the last report, Fred, he noticed there was a great quote on the back of the report and Roger went out in search of a quote that would be meaningful for this study and we found this. Roger found this from Benjamin Franklin and I think it really captures what we have here, "That through energy and persistence, we can conquer this issue of CO_2 much like we have other issues the industry has dealt with.

Again, I appreciate everybody's help and support on this. I think it's a great body of work for the Council to put forward. Do we need to make a motion?

CHAIRPERSON NELSON: We do. Would you like to do it?

MR. McCALL: I would move that the Council adopt this report.

PARTICIPANT: Second.

CHAIRPERSON NELSON: All in favor?

ALL: Aye.

CHAIRPERSON NELSON: Opposed? Congratulations.

MR. McCALL: Thank you.

(Applause)

CHAIRPERSON NELSON: We have a question or a comment.

MR. PALMER: I want to take this opportunity to congratulate Mike as Chair and Roger for all the hard work that has been done on this report. I think it is an exciting report. It has solid information in here that when you sit down, if you care about the country, and I know our legislators do, and you care about working men and women, and I know our legislators and our President do, and you care about affordable low

cost always available energy for the American people, and I know our legislators and President do, and we care about the environment and climate, and I know our legislators and President do, then the only path forward in terms of dealing with coal, which we have to use more of, is identified in this report.

And Mike's comments with respect to mandates, and I think we will see mandates, hell we have a Supreme Court that said we're going to have mandates, it's going to be -- it has to be longer term, the technology has to be, as you put it, Mike, available, affordable and deployable before we can have mandates, otherwise we have a train wreck.

This report gives that guidance and that path forward for this country and I want to thank you personally, Mike, for your leadership and your eloquence and, as I said I owe you dinner, I owe you dinner. Thank you very much.

MR. McCALL: Thank you, Fred.

(Applause)

CHAIRPERSON NELSON: Well, I'll do it. Thank you, a tremendous effort. And just to tag on to Mike's comment, we will ask the chapter leaders to come to the front of the room at the conclusion of the meeting to answer questions for the media.

We have one other housekeeping announcement and that is about -- I think I can probably -- you want to describe it? We at the office here, the National Coal Council office in Washington here, we have gone through, many of you will relate to this, a server change and upgrade and a computer upgrade and so we have had a few glitches. We ask for your patience in that process and we are hoping to get that taken care of in the next couple of days.

Okay. Bob needs the microphone here.

MR. BECK: I apologize for interrupting, but most of you know, because you visited with him this morning, that George Rudins is about to retire from the Office of Fossil Energy over at DOE officially July 1st is his first

day of retirement, so I guess June 30th is his last day on the job. We don't have a resolution prepared at this time, but I would like at least a sense or maybe a motion from the floor, Jackie Bird moves.

MS. BIRD: I move that we formalize a resolution to honor George and all his significant contributions to the coal and power industry over the course of his career, which has benefitted, I think, everybody in this room and beyond. And not letting him walk into the sunset without our gratitude.

MR. BECK: So moved. Do we have a second?

PARTICIPANT: Second.

MR. BECK: Seconded. And what I will do rather than take time here right now is just task our Secretary, Mr. Grimes, to draft that up and then to have Georgia sign it on behalf of the Council and convey it to George before the end of the month and he rides off into the sunset. Thank you.

CHAIRPERSON NELSON: Thanks, Bob.

(Applause)

CHAIRPERSON NELSON: Thank you. This meeting is duly authorized and publicized as open to the public. The public can submit comments to the Department of Energy or if any individual wishes to speak, they may do so at this meeting. Those who wish to speak may do so at this time. Does any member of the public wish to speak?

Okay. Let me announce that we hope to hold the next full Council meeting in the fall of 2007, location likely Washington, D.C., and with that, if there is no other business to come before the Council, we stand adjourned. Thank you very much.

(Applause)

(Whereupon, the full Council meeting was concluded at 12:01 p.m.)

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