

**DEPARTMENT OF ENERGY'S DECISION TO
RESTRUCTURE THE FUTUREGEN PROGRAM**

HEARING
BEFORE A
SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE
ONE HUNDRED TENTH CONGRESS

SECOND SESSION

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THURSDAY, MAY 8, 2008

U.S. SENATE,
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:34 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senators Dorgan, Domenici, Craig, Bond, and Allard.
Also present: Senator Durbin.

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. We'll call the hearing to order. This is a hearing of the Senate Appropriation Committee, the Subcommittee on Energy and Water. We have called a hearing today to discuss the Department of Energy's FutureGen project and the development as a result of the announcement by the Department of Energy of that project and the advancement of other related issues on carbon capture and storage.

In June we will be taking up climate change legislation on the floor of the United States Senate. It underlines once again, the urgency that all of us feels about the need to have technology capable of allowing us to continue to use our coal resources and capture carbon and sequester carbon in order to protect our environment. Even as we pass climate change legislation, I don't think climate change legislation is likely to go to the President for a signature this year. But we will take it up on the floor of the Senate.

And I think all of us understand that the three remaining candidates in the race for the presidency all believe there needs to be legislation enacted. So it's very likely that, at the very least, next year climate change legislation will be enacted. And the question seems to me for a good many of us is with 50 percent of the electricity coming from coal and with climate change legislation being enacted calling for targets and time tables and so on.

How do we continue to use our coal resource without causing damage to our environment? The answer to that is through technology and through learning. Through demonstration projects and going from demonstration to commercial application of projects that will capture carbon and sequester carbon or use carbon for beneficial use, financed oil recovery or perhaps producing algae and therefore diesel fuel and so on.

I mention all of that only because I think this is a critical area and a very important issue. And the timeline is becoming much tighter than previously. Some long while ago the concept of a FutureGen was created and the FutureGen project was—I kind of see it as a big bang project where you put together a number of different technologies with a coal-fired IGCC plant that brings together many different technologies which includes on the back end capture and sequestration, of carbon.

And the FutureGen project, when announced, was announced with great excitement. Then as time moved on and various selections were made and sites were established and so on, the Department of Energy announced the costs of the FutureGen would be increasing and their estimated cost to completion would increase. And ultimately the Department of Energy announced that they were abandoning the FutureGen project as we know it with one large project and going to reformulate that to several smaller projects.

Even as that is working with the announcement by the Department of Energy the Clean Coal Power Initiative, I think has been suffering for money. And in part, perhaps because of FutureGen, but for whatever reasons the Clean Coal Power Initiative which I view just as urgent because it's the initiative that will move out the funding for various projects around the country that will give us also information about technology and capability of carbon capture. And we have, I think, short changed the Clean Coal Power Initiative.

Now I don't know what we should do about FutureGen frankly. I'm not an expert in this area, but I do think this. I think that the ultimate decision about FutureGen should probably be made in 8 or 10 months by the next administration.

In the meantime that should not be meant to express that we can tread water or waste time. I'm going to emphasize in the mark up of our bill this year a substantial amount of income necessary to be applied to the Clean Coal Power Initiative. We've got to move ahead. And move ahead with urgency.

We need to understand what we're doing here. We need to get these projects out. We need to understand the capability with both demonstration and also the potential commercialization of opportunities to capture carbon.

And ultimately we've got to have targets and time tables in the climate change legislation that meets the technology capability because if we don't, we're in big trouble. As I said with half of our electricity coming from coal if we're not going to decide one day by the way there's going to be no coal used. And so the question is how do we use coal. And much of the answer to that is in the bowels of the Department of Energy's projects and the projects that we will fund here in this subcommittee.

So we're holding a hearing today to better understand what the Secretary has announced with respect to his judgment about FutureGen. And what he would like to do moving forward. And what I'm saying is that I believe that ultimately the fate of the FutureGen project, as we know it, will likely be made by a new administration.

But in the meantime the Secretary's judgment about what we do with respect to other resources that are vitally necessary to allow us to continue to use coal and do so while we protect the environment. It's just very important. And there's a much greater urgency about that now than there was previously.

So I'm going to call on my colleague, Senator Domenici, for an opening statement. And then if we can very brief statements from the other members of the subcommittee because we want to move on. We're going to have a rather lengthy hearing, I think.

Senator Domenici.

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. Thank you very much, Mr. Chairman. Thank you for attending, Mr. Secretary. And let me suggest that it has been this Senator's impression that our country has been rather fortunate that you have become our Secretary.

More things are being done at the Department than ever before in history. And that there's more prospects for good things to happen, coming forth from your management of that Department. That I'm very hopeful, whatever your goals are for completion before you leave, that you will be able to achieve them.

Obviously it is not a good thing that happened to FutureGen because there was a lot of expectation that will not be achieved at least in the time span and pursuant to the ideas that were originally put forth. But I believe it's important that we hear and pay attention carefully to your views as to why what happened happened. Now there seems to be, some people seem to be talking about Congress issuing this contract on FutureGen.

I don't believe we can do that. I don't believe we're in the business of issuing contracts. I think we're in the business of providing authority for the executive branch to do that.

PREPARED STATEMENT

I hope we have an honest evaluation from both sides, good discussion and that perhaps as a result of openness and indication of grave concern on all parts that some good will come of this hearing. I thank you for coming. And I thank you for calling the meeting, Mr. Chairman.

Senator McConnell has submitted a statement to be inserted in the record.

[The statement follows:]

PREPARED STATEMENT OF SENATOR MITCH MCCONNELL

Thank you, Mr. Chairman, for convening this hearing of the Subcommittee on Energy and Water Development to discuss FutureGen and carbon capture technologies. This is an issue that is very important to my State.

First, I would like to recognize Paul Thompson, who will testify on behalf of the FutureGen Industrial Alliance. Paul is a resident of Louisville, Kentucky, and he currently serves as the chairman of the board of the FutureGen Industrial Alliance. In addition to his duties on the FutureGen board, Paul serves as senior vice president of Energy Services at E.ON U.S. Paul is also a leader in his local community, dedicating his time to the University of Kentucky Center for Applied Energy Research, Greater Louisville Inc., as well as the Louisville Free Public Library Foundation and the March of Dimes. I am pleased to have him here today to receive an update on the FutureGen Alliance.

Each time a Kentuckian turns on their favorite television show or uses their computer they likely owe the ability to do so to coal. That is because Kentucky derives over 90 percent of its electricity from coal. While coal is a vital part of Kentucky's economy, it also provides over half the country's electricity and constitutes over 90 percent of America's fossil-fuel resources. The truth is we have enough coal in America to supply our Nation for more than 250 years.

The use of this abundant resource in local power plants has played no small part in economic development in my home State. We have some of the lowest power rates in the Nation, which helps attract new industries and bring high-paying jobs to local communities. We must maintain that competitive advantage by ensuring incentives for the development of clean coal and carbon capture technologies.

Kentucky, along with the rest of the Nation, can and will be a leader in working toward producing clean coal energy. I have met with many leaders in the coal industry as well as other Kentuckians who are excited about the possibility of continuing to provide America's power in an innovative and environmentally responsible manner. I look forward to working with them to make sure we reach that goal.

Senator DORGAN. Senator Domenici, thank you very much. Let me also echo my colleague's comments. Secretary Bodman, you've had kind of a unique position of being well qualified for the position that you've been appointed to. That doesn't always happen in the Congress. And I've enjoyed working with you.

Senator BOND.

Secretary BODMAN. Thank you, sir.

STATEMENT OF SENATOR CHRISTOPHER S. BOND

Senator BOND. Thank you very much, Mr. Chairman, Senator Domenici, Secretary Bodman. The chair and the ranking member have already said the nice things that you deserve to have said about you. I'm very happy to endorse them.

The one little area where we have discussed previously, I've talked with the White House. I've talked with the leadership of the Congress. The leadership of this subcommittee is about FutureGen, the importance of FutureGen at Mattoon. But as you can tell, it's important to me and I'm excited to hear the chairman's proposal to make major contributions towards speeding up clean coal technology.

We'll hear about all these things in FutureGen. Then we'll hear most of all about the need to avoid further delay in this area. These are all important points.

But I think we ought to look at it in the big picture. We're all here because we're committed to making our energy cleaner, our families, our children, our climate, all demanding cleaner energy. And on their behalf, I think we stand at the edge of a new era of clean energy which produces little or no pollution or energy production will emit nothing more than clean, pure water in the environment.

It's a long way to go towards zero pollution. Unfortunately, I think we're doing far too little to enter this era. Now don't get me wrong, I agree with what Senator Domenici said with the executive branch, your Department, with the leadership of Congress, the scores of bright and dedicated professionals that you have at DOE.

You're researching and developing these technologies. In the area of coal we need to find ways to make current plants pollute less. Capture carbon emissions and sequester them. The problem is they have too few resources which limit them to too few projects.

They have the technology they've developed in the labs, but they can only afford small pilot scale testing. And it's a whole lot easier

to make up, do something in a lab than to demonstrate it and to apply it in a commercial setting. And I think that's where we have a slightly different focus.

Only when these technologies become proven, reliable, affordable, will they become widespread. Only when we can export proven and affordable technologies to big polluters like China and India will they be willing to join us. I happen to think that President Bush is Asia Pacific partnership, sharing these clean coal technologies with our late, large Asian nations.

It's not only the best hope we have for getting worldwide air cleaner and improving it, but it means jobs for American workers. But this era will take money every year, not tens or hundreds of millions, but billions of dollars. Not 5 or even 10 years, but perhaps 20 years. And we'll not be getting there by fighting over little pieces of the small pie. We'll not get there by trying to convince ourselves that three little projects are better than one.

It's not how we put a man on the moon. It's not how we ended a world war. It's not how we'll usher in a new clean energy era.

Embracing clean energy means providing resources and order of magnitude more than we ever have before for everything from clean coal to nuclear, solar, wind, clean cars, energy efficient buildings and homes and we need the technology not in test plants, but in every plant. We need hybrid cars, not in yuppie garages, but in every garage. We need the technology that someday is affordable for rich countries, made affordable for all countries. Then all of us can enter the clean, new, clean energy era.

That's not going to happen today. We need to start it. And I appreciate so much the leadership of the chairman and ranking member of this subcommittee. And I'm pleased to be one of the ones supporting as best we can their efforts. Thank you, Mr. Chairman.

Senator DORGAN. Senator Bond, thank you very much. Senator Durbin is a member of the full committee and has asked to join us this morning. I'm pleased to extend that courtesy on this subcommittee. Senator Durbin, thank you.

Senator DURBIN. Thank you very much.

Senator DORGAN. Let me call on Senator Craig for a brief opening comment and then I'll call on you Senator Durbin. We're trying to keep comments as short as we can. And then we'll call on Secretary Bodman for his statement.

But Senator Craig, would you proceed.

STATEMENT OF SENATOR LARRY CRAIG

Senator CRAIG. Thank you very much, Mr. Chairman. Secretary, we're pleased to have you with us this morning. Idaho doesn't produce one modicum of coal. So from a passionate point of view, I may be less concerned about FutureGen. But I still remain extremely concerned about FutureGen or future technologies as it relates to coal.

And it's quite simple, Mr. Secretary, crude on the world market hit \$124 today. It is \$3.65 headed for \$4 at the pump. The news is saying it could go to \$7 a gallon? I mean there are long list of things out there that are frustrating Congress and the American people at this moment relating to energy.

We're debating climate change. And my guess is within the next year this Congress will stumble into and a President may sign a climate change bill that will or won't distort a market. We don't know yet what is happening.

What we do know is critically necessary. And this country has the unique opportunity to lead, to lead the world in areas of technology using public resources, well directed for the purpose of maximizing that. I find it almost unforgivable that the politics of this country would tumble us into a cap and trade and market control system when we could lead the world in technologies that would make us cleaner.

We never dreamed that last June, China would surpass us in carbon emissions into the environment. But they did. We expected it down the road a good number of years.

But it's now happening. So there is a world out there crying for a need for change and a reasonable supply of cost effective energy. And in the area of electrical generation there is no question in my mind that coal must play a role.

So I hope this is not an opportunity lost. For if it is, then shame on us and shame on you. And so I'm anxious to hear your point of view this morning on what it does represent. Because opportunities lost when we passed EPACT 5 and we said that in that field in which we knew not where to go we would provide loans and opportunities to push technology out to the edge. Some would win and some would lose.

That was 2005. It's 2008 and not a loan has been yet issued. And so I'll chat about that in my question and answer period.

Am I frustrated? Yes. I am.

And a Congress that wants to get something done 20 years later than they should have started. And an administration that clearly wants to get something done too. And that we can't harmonize on some of these key issues that take us into the future with the kind of leadership and technology that will be critical. Thank you. Thank you, Mr. Chairman.

Senator DORGAN. Senator Craig, thank you very much. Senator Durbin.

STATEMENT OF SENATOR RICHARD J. DURBIN

Senator DURBIN. Senator Dorgan, thanks to you and Senator Domenici, my colleagues, for giving me an opportunity to join you this morning to speak about the FutureGen project. I welcome Secretary Bodman, as I'm sure you already have and I'm certain that his testimony and mine may be at variance. And I would like to explain my point of view about what happened with the FutureGen project.

We face a challenge in this country. And I think each of us understand it, how to come up with energy sources to fuel our economy and serve our country and do it in an environmentally, responsible way.

And so over 5 years ago President Bush came up with a novel, creative and innovative approach. He suggested that we would build an electric powered generating facility, powered by coal that would have zero emissions. It was a source of great pride for the administration when they announced this over 5 years ago. This is

the website of the U.S. Department of Energy up to and through the day when they made the site selection, when the FutureGen Alliance made its site selection.

In fact this continued to be on their website with great pride long after that selection had been made. Well, as a result of the announcement by the Bush administration about this new, exciting, research project, seven States took this administration and its word and got into fierce competition to win this site. The States included: North Dakota, Wyoming, Texas, Illinois, Kentucky, Ohio and West Virginia.

The competition went forward with great expense, great investment by each one of these States. It wasn't a casual commitment. They had to prove that theirs was the best site in the Nation for this groundbreaking technology that would finally allow us to sequester carbon dioxide so it wouldn't get into the environment and cause environmental damage. And at the same time we could unleash the potential of coal as an energy source.

My State went into this competition with great excitement and enthusiasm. Illinois is part of the Illinois Basin Coal Reserve. It is a huge energy reserve smack dab in the middle of the United States. And we decided we want to be sure that we were well represented and that our communities went in competition.

We first went to southern Illinois. The natural place where most of the coal mines originally were located and then realized because of seismic concerns, which we learned about a few weeks ago, we couldn't qualify. But we found another place in the State, two communities in the central part of the State including Mattoon, Illinois.

And I want to just tell you, members of the committee; they put their heart and soul in this effort. Mr. Secretary, every member of those communities from the chamber of commerce, working people and businesses. I mean they really believed in what this administration said that this was the promise of the future and they want to be part of the future.

And they went to their State legislatures and said to them, we need your help too. We need loan guarantees. We need to make sure we are competitive so that this project will work.

On a bipartisan basis in the Illinois general assembly they got that cooperation. They passed that legislation. They went to the Governor and the administration at the State level. I haven't seen an effort by this administration to try to win a Federal grant the way they did. And it went forward.

And of course the field was narrowed in terms of site selection until December of last year when it came down to two States, Texas and Illinois. And the FutureGen Alliance was to make the selection. The Illinois site had been endorsed by more than just Illinois. In fact, the States of Indiana, Kentucky, Michigan, Ohio, Pennsylvania, West Virginia, Wisconsin and Wyoming all endorsed this effort. Saying they thought Mattoon, Illinois, the Illinois site was the right place to go.

Now I understand, Mr. Secretary, this wasn't your idea. FutureGen preceded your arrival here in Washington as Secretary of Energy. But that website and that proposal and all of this effort went on for a full 2 years after you became Secretary.

It wasn't until the FutureGen Alliance chose Mattoon, Illinois over the Texas site that a few weeks later you came to my office and said that's the end of the project. We're killing it. That will be the end of FutureGen. Saying at the time we're concerned about the cost.

You know, I understand that. We should be concerned about cost. The longer you wait on a project, you know it's going to cost more each year.

FutureGen Alliance represents international and national private sector partners who are willing to share in the cost of that. Did you negotiate with them? No. You walked away from it. You pulled the plug on this project and left these people hanging after 5 years of effort.

Well, the good news is that a new administration is on the way. And I hope that administration will have a more enlightened and positive view toward the opportunity that FutureGen will provide for us. I think what you did, what the administration did, not only to my State, but to the seven States that in good faith competed for this, was unfair and unfortunate. For the good and future of coal as an energy source, I hope that we can keep FutureGen alive after you're gone.

Senator DORGAN. Senator Durbin, thank you. I want you to save some for questions, if you're able to stay around. But thank you very much.

Senator Allard, did you wish to make a brief opening statement?

STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. Just a brief one if I might, Mr. Chairman.

Senator DORGAN. Yes, please.

Senator ALLARD. Mr. Chairman, thank you for holding this hearing. Coming from the State of Colorado I'm a strong proponent of the use of coal for electrical generation. The FutureGen concept is one that I've been looking forward to seeing come to reality. So I was concerned about reports of restructuring the proposal and deviating from the original intent of research and development. As a scientist I'm strongly supportive of basic science.

Once the new proposal was clear however, I was very interested to hear that the administration has chosen to focus on multiple commercial demonstrations of carbon capture and storage capabilities rather than taking the more narrow approach of a single research and development facility. I happen to believe that competition between scientists serves us best. I think it also helps save the taxpayer dollars. And I was equally concerned when we saw the high cost of this particular project evolve as it developed.

So I think that you've taken a responsible approach. So I look forward to hearing your testimony and to engaging a dialogue with you on this matter. Thank you.

Senator DORGAN. Senator Allard, thank you very much. Mr. Secretary, thank you for being with us. Again, I thank you for your work. This issue is a controversial issue as you know. And we asked you to come and give us your perspective.

What we have heard so far is really only the public announcements. Although, we've, a number of us have had some phone calls from you. But you may proceed with your statement.

Your entire statement will be made a part of the permanent record and you may summarize.

STATEMENT OF HON. SAMUEL W. BODMAN, SECRETARY, DEPARTMENT OF ENERGY

Secretary BODMAN. I'll do that, sir. I do appreciate the opportunity to discuss this matter with you. Also to discuss the FOA or the Funding Opportunity Announcement that occurred yesterday related to the restructured program.

In the beginning of my remarks I'd like to make one thing clear. I made a very difficult decision to restructure the FutureGen project. And I did it in order to save it from itself.

Without this intervention I do not believe the originally structured project was sustainable either politically or economically. And that in order to bring the vitally important technology of commercial scale carbon capture and storage or CCS as we call it, to the marketplace a change in the project structure simply had to be made. Understanding the series of events which led us to this decision is fundamental to appreciating the need for restructuring and to fostering support for the path forward.

To begin I believe that it is necessary to acknowledge that America's energy production, as you know, is heavily reliant on coal. Coal powered electricity generation accounts for roughly half of our domestic electricity mix. And it is the most abundant of our domestic fossil fuels with some estimates accounting for recoverable reserves of roughly 240 years at current use.

However coal powered electricity also accounts for a significant release of carbon dioxide emissions into the atmosphere. It was with those realities in mind that the President proposed the concept of FutureGen. The project was originally envisioned as a large scale engineering laboratory for testing new, clean power, carbon capture and coal to hydrogen technologies.

It was originally conceived of as a \$950 million public/private venture. Using escalation factors at the time the program was conceived the original estimate was roughly \$1.1 billion instead of \$950 million. I think that's a fair number to use.

However by early 2007 the escalated estimated cost of the project increased to roughly \$1.8 billion. With the taxpayers responsible for 74 percent of the total cost and the private sector partners responsible for 26 percent. That means the taxpayer was being asked to shoulder at least \$1.3 billion of a projected total project cost which we anticipated would only continue to escalate in the future.

The Alliance, for its part, almost doubled the number of companies involved in the project between 2005 and 2007. Even though the American taxpayer was being asked to fund \$1.3 billion instead of \$700 million or almost double, an individual company participating in the Alliance actually was investing less money than they were before. Something in my judgment was profoundly wrong with this deal.

These problems did not go unnoticed by Congress. In fact this very subcommittee issued report language during the debate over fiscal year 2008 appropriations process that stated "the subcommittee has emphatically stated its intent and has warned that this R&D project (that is to say FutureGen) must not be funded at

the expense of the balance of the coal R&D program.” The House Appropriations Committee went even further calling on DOE last summer to restructure FutureGen in a fashion that is quite similar to what we have already done.

Concurrent with the reexamination of the project and the cooperative agreement significant changes in the marketplace began to occur. And they continue to this day. When FutureGen was first announced, few proposals for the construction of the highly technical, integrated gasification and combine cycle or IGCC coal plant, they hardly existed.

Today there are three operating IGCC plants with two more in the permitting process and nearly an additional 30 in various stages of planning. Carbon capture and storage technology has also made important strides since the original FutureGen program was launched in 2003, largely through the efforts of DOE’s carbon sequestration program.

Adding to these changes is the recent trend of regulatory uncertainty. More and more we are seeing States and communities say no to the construction of new coal-fired plants. As a result we’ve seen 36 powerplant cancellations, 14 postponements between January 2007 and March of this year.

Collectively these plants would have produced an estimated 37 gigawatts of electricity. Depending on how much a typical house would use that’s about 37 million houses in America. So it’s a sizable amount. As you can tell from these statistics the need to demonstrate CCS technology on a commercial scale is now. And we believe that FutureGen is the appropriate program to get it done.

This brings me back to the decision to restructure the program. After 7 months of discussions between DOE representatives and the FutureGen Alliance it became evident to me that we could not reach agreement on the amount of cash that would be contributed to the project by the Alliance along with an allocation, a change in the allocation of risk in the future. A number of you I’ve spoken to about this personally.

Recognizing that our failed attempts at limiting taxpayer exposure required us to change course, we undertook a formal effort last December to build upon our previous work. While taking into account the technology advances and the new market conditions to restructure the project. The goal of demonstrating system integration of CCS technologies in our restructured FutureGen program remains the same as the original FutureGen approach announced in 2003.

The difference is that under the restructured program our plan with current cost estimates will support funding for multiple commercial demonstrations of integrated advanced CCS technologies that will operate commercially from the start. While also harnessing the power of the private sector innovation, capping taxpayer exposure and maximizing the impact of Federal investment. To move this restructured FutureGen program forward DOE launched an aggressive schedule for its implementation including a request for information issued last January which resulted in a significant amount of input from over 50 parties that responded to that. Yesterday the Department issued a draft funding opportunity announcement or FOA which will allow perspective proposers an

opportunity to provide the Department with additional input before we release the final FOA by mid summer with an announcement of selections targeted for December of this year.

As I explained at the start, coal is a strategic energy resource for America. Our commitment to coal cannot waiver. But to be successful in confronting the energy and environmental challenges before us, we cannot continue the business as usual approach.

We must continually ask if we are efficiently using our taxpayer investments to achieve a cleaner, more sustainable, more affordable and more secure energy future. Where we are not, we must make changes. That is the difficult responsibility of leadership. And that is exactly what we are doing with the FutureGen program.

PREPARED STATEMENT

Mr. Chairman, I know that you and the other Senators have questions for me. So at this time I would like to enter my written statement for the record. Thank you.

[The statement follows:]

PREPARED STATEMENT OF HON. SAMUEL W. BODMAN

Chairman Dorgan, Senator Domenici, members of the subcommittee, I appreciate the opportunity to discuss with you the status of the Department of Energy's FutureGen program. Today I will summarize how we have restructured the program, describe the reasons for the restructuring, and then discuss in greater detail how we intend to carry out the program.

COMMITMENT TO CLEAN COAL

The United States Government is on an ambitious course to develop and deploy clean energy solutions that are technologically feasible, commercially scalable, and economically sustainable to increase America's energy security while reducing greenhouse gas emissions.

America's energy production, as you know, is heavily reliant on coal. Coal powered electricity generation accounts for roughly half of our domestic electricity mix and it is the most abundant of our domestic fossil fuels, with some estimates accounting for recoverable reserves of roughly 240 years at today's usage rates. Of course, the burning of this tremendous resource for electricity generation results in a release of emissions, including carbon dioxide, which is widely identified as contributing to climate change.

Last month President Bush announced a national goal to stop greenhouse gas emissions growth by 2025. This is a major step forward in the United States' ongoing efforts to address global climate change. Deploying advanced technology, including carbon capture and storage (CCS), will play a vital role in U.S. efforts to meet this goal. And advancing CCS technology in a commercial setting at an accelerated pace is a key objective of the restructured FutureGen initiative that I am here today to discuss.

The focus of our restructured FutureGen program remains the same as the original FutureGen approach announced in 2003—to maximize the effectiveness of our national investment in clean coal research through demonstration of cutting-edge system integration of CCS technologies. The difference is that under the restructured program, our plan aims to support not just a single R&D testing laboratory, but rather to provide funding for commercial demonstration of integrated, advanced CCS technologies.

FutureGen is one of a suite of initiatives in our broad portfolio to advance clean coal technology. We are spurring investment in advanced fossil energy technology by supporting not only robust research and demonstration, but also making available nearly \$10 billion in publicly-backed incentive measures through 2010, including:

- Up to \$8 billion in loan guarantees to support advanced fossil energy projects that deploy the most promising new or significantly improved technology. In addition, the Department identified three integrated gasification combined cycle (IGCC) projects during its first round of loan guarantee solicitations that we

have invited to submit a full application, on which we expect to begin our thorough financial and technical review this year.

—Portions of \$1.65 billion in clean coal tax credits to reduce risks of early commercial deployment of advanced clean coal technologies.

U.S. investments to demonstrate the potential of clean coal technology, including carbon sequestration, are leading the world. Since 2001, the administration has invested more than \$2.5 billion in clean coal technology, including carbon sequestration projects and IGCC research that have advanced our understanding of the potential for clean coal technology. In addition, our budget request for next year is the largest amount requested for DOE's coal program in more than 25 years. This \$648 million request will further the development of more efficient gasification turbine, and carbon capture technologies, drive innovations for existing coal power plants, and support large-scale CCS injection tests that are critical to demonstrating the safe and permanent storage potential in domestic geologic formations.

ORIGINAL FUTUREGEN APPROACH

As announced in 2003, the FutureGen program was originally envisioned as a large-scale engineering laboratory for testing new clean power, carbon capture, and coal-to-hydrogen technologies. It was conceived as a \$950 million public/private venture with the taxpayers responsible for 74 percent of the total project cost and the private sector partners responsible for 26 percent. In December 2005, the Department formally entered into a Cooperative Agreement with the FutureGen Alliance to build and operate the facility.

In 2007 the estimated cost of the project had increased roughly to \$1.8 billion, of which, the Department would be responsible for at least \$1.3 billion of the total cost, which we believed would only continue to escalate and would ultimately threaten funding for our other ongoing coal research and development projects. As such, Deputy Secretary Clay Sell and others immediately made our concerns known to the Alliance in a meeting in April 2007; we began internal deliberation on changing the scope of the project that spring and summer; and we engaged Congress on the cost escalation issue relative to the fiscal year 2008 appropriations process. In fact, report language issued by this subcommittee stated, "the subcommittee is concerned about maintaining adequate funding for the core fossil energy research, development, and demonstration programs. The subcommittee has emphatically stated its intent and has warned that this R&D project must not be funded at the expense of the balance of the coal R&D program."

By the end of the summer, we began formal negotiations with the Alliance to limit taxpayer exposure, change the scope of the project, and ultimately restructure the terms of the Cooperative Agreement to make the project sustainable and viable.

CHANGING TECHNOLOGY, MARKETS, AND REGULATIONS

At the same time that the FutureGen project was experiencing dramatic cost escalation, significant changes were occurring (and continue to this day) within the technology field, the marketplace, and the regulatory environment. When FutureGen was first announced, few proposals for the construction of the highly technical IGCC coal plants existed. Today, in addition to the two IGCC plants currently operating on coal in Florida and Indiana, and one operating on pet-coke in Delaware, two newly proposed IGCC power plants have passed the permitting process (an AEP plant in Illinois and a Duke plant in Indiana), and nearly 30 additional clean-coal plants of this type have been publicly announced and are in various stages of planning.

Carbon capture and storage technology has also made important strides since the original FutureGen program was launched in 2003. DOE's Carbon Sequestration program has developed a network of seven Regional Carbon Sequestration Partnerships to help demonstrate the technology, infrastructure, and basis for regulations necessary to implement large-scale carbon dioxide (CO₂) sequestration projects in different regions and geologic formations across the Nation. The Partnerships have estimated that U.S. geologic formations have the technical potential to store more than 600 billion metric tons of CO₂, the equivalent of more than 200 years of emissions from stationary fossil energy sources in the United States. The large-scale tests are a continuation of the 25 small-scale geologic storage tests that the Partnerships are implementing today and the characterization phase for these large scale injections that was successfully completed in 2005.

Those marketplace changes and technological advances are important, as is the recent trend of regulatory uncertainty. More and more, we are seeing States and communities say "No" to the construction of new coal-fired plants because of concerns over the carbon dioxide emissions they will produce, in addition to cost consid-

erations. Further, some companies have become concerned about investing in coal plants, even those utilizing advanced technology, citing uncertainty about future regulations.

As a result of regulatory, economic and environmental concerns, we've seen 36 power plant cancellations and 14 postponements between January 2007 and March 2008. Collectively, these plants would have produced an estimated 37 gigawatts of electricity.

The marketplace is showing increased interest in beginning the deployment of commercial scale IGCC plants that could be coupled with carbon capture and storage technologies. As I see it, we need to use the FutureGen program to spur the use of this advanced technology and at a faster rate.

DECISION TO RESTRUCTURE FUTUREGEN

Returning to our decision to restructure FutureGen, after several months of discussions between DOE representatives and the FutureGen Alliance, it became evident that we could not reach agreement to revise the cost sharing arrangement for cost escalations in a manner that would limit in a reasonable way the Government's financial exposure on this project. Moreover, the Alliance insisted on leveraging major portions of its 26 percent contribution as debt against the entire project. Recognizing that our efforts to limit taxpayer exposure had been unsuccessful, we undertook a formal effort last December to reconsider the direction of the FutureGen Project, with the intent to build upon the technology advances in CCS and respond to the new market conditions, while retaining and accelerating the original goal of finding a way to produce electricity from coal with dramatically lowered emissions into the atmosphere.

After much thought and consideration, I chose to restructure the FutureGen Project in order to improve the prospect of success for the commercial introduction of this technology within the increasingly urgent timeframe that the global situation requires. Without this intervention, I believe that the originally structured project would not have been sustainable—either politically or economically—and that, in order to bring the vitally important technology of commercial-scale CCS to the marketplace, a change in the project structure simply had to be made.

Unlike the original approach, the new plants are expected to operate commercially from the start and will provide a significant amount of electricity to our Nation's electric grid. This should help meet the Nation's rapidly growing demand for energy, while also demonstrating the commercial viability of permanently and safely storing carbon dioxide deep underground. These commercial plants should be able to be replicated around the world. The power sector should be able to plan and to finance new state-of-the-art coal facilities based upon cutting-edge system integration of CCS technologies at commercial plants under the restructured FutureGen program.

The restructured approach harnesses the power of private sector innovation, caps taxpayer exposure, and maximizes the impact of the Federal investment while substantially increasing our likelihood of success.

- Projects collectively will sequester at least double the amount of CO₂ expected from the original FutureGen program. The CO₂ generated by each plant will be sequestered in a saline formation.
- Projects will build on technological R&D advancements that have been made since the FutureGen concept was announced in 2003, which include laboratory-scale and small-scale carbon sequestration projects, through the Regional Carbon Sequestration Partnerships.
- Projects aim to hasten the timeframe for full-scale commercial operation of IGCC or other advanced technology coal power plants with CCS, enabling market use as soon as the plants are commissioned.
- This approach allows us to join industry in an effort to build clean-coal plants by providing funding for the addition of CCS technology to multiple plants.
- Projects will demonstrate the integration of CCS technology with advanced coal-power electricity generation, and seek to clear hurdles associated with early technology demonstration, thereby increasing the likelihood of rapid commercial deployment after 2015.
- Projects will help provide the technology basis to inform regulatory and technology development to the next generation of coal plants, many of which are facing cancellations due to concerns about the statutory and regulatory situations relating to greenhouse gas emissions.

To move this restructured FutureGen program forward, DOE launched an aggressive schedule for its implementation. The Department initiated this schedule with a Request for Information (RFI) to secure industry input in advance of a competitive solicitation to provide financial assistance for CCS demonstrations integrated with

market-ready, commercial IGCC or other clean technology coal power plants. The deadline for the public to submit comments was March 3, 2008. I am pleased to report to you that many of the approximately 50 parties that responded to the RFI expressed strong interest in conducting coal-based projects using CCS. The comments we received from the RFI provided valuable input into the development of a draft Funding Opportunity Announcement (FOA), the next stage of moving forward with the restructured FutureGen program.

This week the Department issued a draft FOA, which will allow prospective applicants an opportunity to provide the Department additional input before we release the final FOA this summer. Following the issuance of the final FOA, we will evaluate the applications received, and hope to announce selections in December 2008. After successful completion of National Environmental Policy Act (NEPA) analyses, commercial operations could begin in 2015.

CONCLUSION

As I explained at the start, coal is a strategic, energy security resource. It is the most abundant, lowest-priced fossil fuel in the United States and will remain a major source of energy both at home and abroad well into this century. In 2007 alone, the United States consumed 1.1 billion tons of coal, and that figure is expected to grow to an estimated 1.5 billion tons by 2030, a 37 percent increase, according to DOE's Energy Information Administration.

The United States must continue to use coal, and we are committed to doing so more cleanly and efficiently while, at the same time, reducing its environmental impacts.

Our commitment to coal cannot waver, but to be successful in confronting the energy and environmental challenges before us, we cannot continue the business-as-usual approach. We must continually ask if we are using our taxpayer investments efficiently to achieve a cleaner, more sustainable, more affordable and more secure energy future. Where we are not, we must make changes. That is the difficult responsibility of leadership and that is exactly what we are doing with the FutureGen program. Understanding the series of events which led us to this decision is fundamental to appreciating the need for the restructuring and to cultivating and engendering support for the path forward. I hope that my testimony before this subcommittee will help shed light on these issues and illustrate the vital need to support and proceed with the revised project.

The Department appreciates the support we have received from Congress in our efforts to advance clean coal technologies, and we look forward to continuing that partnership. We hope you will join us in supporting the restructured FutureGen program.

I thank you, Mr. Chairman, for scheduling this hearing and for your interest in the new FutureGen program, and I look forward to answering any questions that you and members of the subcommittee may have.

RETROFITTING EXISTING COAL PLANTS

Senator DORGAN. Secretary Bodman, thank you very much. I think from the opening statements you understand that most of us feel there is an urgent need to move and move quickly. You indicated that in your statement. And I indicated in my opening statement that the need for us to pursue the Clean Coal Power Initiative and do that aggressively.

You know when the President announced at the start of his term a \$2 billion pledge for clean coal technology which then has morphed into a Clean Coal Power Initiative. The seven plus, now 8 years of the administration has come up far short of that pledge. I mean, and that includes FutureGen.

If you take a look at what's been requested for the clean coal technology or Clean Coal Power Initiative and the money that's gone out the door and include FutureGen with that which I understand you define as part of the Clean Coal Power Initiative. It's far short of what the President said should be done. And now we come to the tip of the pyramid with climate change and all of these issues. It makes it even more urgent that we be more aggressive.

Now let me ask a question about—I know that you don't put together the final budget. You ask for the money you think is necessary. You then send it to OMB and then you're not able to tell us what you ask OMB for. And then OMB sends the President. And so, you know we have this annual spring ritual where you can't answer the questions that we ask.

But let me ask a question.

Secretary BODMAN. I think that is accurate, sir, if I may say.

Senator DORGAN. Yes, well, as I said, I think, at the last hearing, I said former Congressman Parker was sitting at the table. And he in a moment of great candor in response to Senator Bond actually told us an answer to the question and the next morning he was fired.

The answer to the question was; are you getting the money you need. The answer is no. This budget is short of that. And the next morning he was no longer working. So we understand the pain on the chair on which you sit.

But let me ask about the annual EIA outlook. I have a graph from March 2008 that you're, no doubt, are familiar with. It shows that 79 percent of the CO₂ generated by coal-fired plants in 2030 will come from coal-fired plants that exist today, so about 80 percent of that which will be emitted by these plants in 2030 in terms of CO₂ will come from plants that exist today.

That seems to me to indicate an urgency to work on retrofitting existing plants with new technology and that that is as much or perhaps even more critical than building new plants. Now I'm not suggesting we shouldn't have a new plan. I'm not suggesting I oppose FutureGen. I am saying, however, that we've got a range of things to deal with.

And I guess the first question is why are we not addressing the retrofitting of existing plants?

Secretary BODMAN. I think we are, I mean.

Senator DORGAN. How are we doing that?

Secretary BODMAN. We're doing that through CCPI. That's what differentiates CCPI from FutureGen and from other programs. It is meant to deal with the question of retrofitting.

Senator DORGAN. But I just described the under funding of that by the administration.

Secretary BODMAN. Well, it's \$85 million, the research.

Senator DORGAN. This year. Last year was——

Secretary BODMAN. Last year was somewhat less than that.

Senator DORGAN. But my point is it doesn't, that none of this meets the President's objective of saying we're going to do \$2 billion in 10 years.

Secretary BODMAN. I think that we've done over \$2.5 billion during the 8 years that this President has been in office. And so——

Senator DORGAN. Well, we'll compare notes, but——

Secretary BODMAN. I'd be happy to go through all that with you.

CCPI ROUND THREE SOLICITATIONS

Senator DORGAN. Sure. On the Clean Coal Power Initiative you're about 44 percent of what was pledged at near or the end of the term. So let me ask about the Round Three solicitations.

Secretary BODMAN. Right.

Senator DORGAN. It seems to me that is the best existing program for demonstrating the addition of these existing plants to this approach. And yet, Round Three is lagging and tell me what's happening with Round Three.

Secretary BODMAN. We need about \$300 million, my recollection is. And with the 2009 request which is about \$85 million, best memory serves, that would put us at \$300 million and we would be able to proceed with Round Three.

Senator DORGAN. So when do you think the administration will make an announcement on Round Three?

Secretary BODMAN. It's going to be a function of budget matter when we get the money.

Senator DORGAN. And so if there's?

Secretary BODMAN. I believe I think we're required to have enough money in the till at the time we solicit the input. And so it's going to be whenever we get the budget done, hopefully this summer.

Senator DORGAN. Mr. Secretary, you called me when you were about to make your announcement. And you described most of the announcement, I think, to cost increase.

Secretary BODMAN. That was what originally got me started, I think, in terms of thinking about this. The question of going in 2 years time from roughly 2005 we had the number verified by the way in early 2005 or early to mid 2005. And by the time 2 years had passed we saw a scale up from \$1 billion, \$1 billion to \$1.8 billion.

There was a meeting that occurred with all of the chiefs following my talking to Mike Morris who is the chairman of American Electric Power. And I talked with him about the need for changing this. This whole thing where we were funding 74 percent of it yet the Alliance had the opportunity to continue to enlarge their membership.

They actually saw a decline having doubled the total cost of the program and the report I got back from the meeting of the CEOs was no one in the room believed that this project could be built for \$1.8 billion, no one. That said to me that we had a major cost issue.

Senator DORGAN. Now the Federal commitment for that was \$1.1 billion as I understand it, given the cost. Is that correct? Federal commitment?

Secretary BODMAN. It was a—well, it would have been \$1 billion. We were committed to 74 percent according, on the original FutureGen. And that's roughly \$1.3 billion out of \$1.8 billion.

REVISED FUTUREGEN PROJECT

Senator DORGAN. So your call for the follow on projects is about equivalent then, \$1.3 billion? You're talking about the smaller FutureGen project?

Secretary BODMAN. Well, exactly. I mean that was—when I talked to Morris, I said, look, I will live with the \$1.3 billion. And I will go to OMB to try and get the \$1.3 billion. But I will ask you to make a commitment to change the Alliance's future cost allocation because I wanted there to be some pressure on them since they were making all the decisions on this project. And I was put-

ting up all the money. It didn't—there was a loss of connection there.

Senator DORGAN. Do you believe there should be additional FutureGen like projects including the integrated projects of the type that the Department originally announced in 2003?

Secretary BODMAN. Of course, that's what the revised the adjusted FutureGen is.

Senator DORGAN. Just not this project.

Secretary BODMAN. That's what it is.

Senator DORGAN. Just not this project you're saying.

Secretary BODMAN. It is more modest spending. It is, you know, roughly one-third of the cost of the total project. And there are limits as to how far we can go.

Senator DORGAN. Right.

Secretary BODMAN. That's what the issue is.

Senator DORGAN. Right. I have some additional questions, but let me turn to Senator Domenici.

COAL POLICY ISSUES

Senator DOMENICI. Mr. Secretary, we have worked together on a lot of projects, for instance, nuclear power starting from a position where we were down and out to a position where nuclear power may indeed be undergoing a renaissance. And you in your position and we in ours up here, we all saw it as something urgent that had to be done.

Secretary BODMAN. Right.

Senator DOMENICI. Now, I'm going to state for myself that probably the aspect of the United States Government's energy policy that has least affected me, affected me the least has been our coal policy. The implementation of our coal policy has, you know, it borderlines a dud from this Senator's standpoint. We just don't seem to be getting it done.

We don't seem to be cleaning up the coal sufficiently which we've had a lot of money poured into clean coal technology. We don't seem to be getting our act together with reference to using coal in other ways, coal to liquid.

We don't seem to be getting our act together in terms of cleaning up coal in ways that we know are necessary for the climate change issue. We don't seem to be making great strides, and you correct me on this one, in terms of sequestration, are we?

Secretary BODMAN. No, sir. I mean, I think that's fact.

Senator DOMENICI. Yes, I do too. Thank you very much. Now having said that I guess I would ask before I get to this program do you have a couple of sentences or a couple of observations as to why that's the case?

Secretary BODMAN. I think the—it's very difficult for the Government to get itself organized to effect massive change. Having said that, I do believe we are, at long last, on the right path, on the right track. I think this FutureGen project as we have redefined it will build hopefully two or three competing CCS programs that will be connected to IGCC or other type of electricity generation. That's what the hope is and the goal.

Senator DOMENICI. And you're suggesting that FutureGen was going to solve one of these problems of fumbling around and not

knowing exactly where we're going and not having control because of what you described. Is that right?

Secretary BODMAN. Well, I think, look, what I think happened was the world changed as we were working on this.

Senator DOMENICI. Yes.

Secretary BODMAN. We didn't have IGCC plants that were built and operating heretofore. We do now. And I think the goal has been to try to respond to those changes. That's what this new this revised CCS program is all about, about the FutureGen program.

FUTUREGEN REVISION

Senator DOMENICI. Now, Mr. Secretary, having said these few preliminary things. There's lots of blame to go around. I, myself, think we haven't spent enough time in oversight over this.

We keep pouring money into so-called clean coal technology for at least the last 12 years. I don't know if Senator Craig thinks that it's been weak, as I do. But I think it's been a weak effort. I think I know why. But I haven't spent enough time to get it on the record.

FutureGen was intended to be a workable program in terms of the application of technology to the solution of a big American problem regarding coal. Is that right?

Secretary BODMAN. That's correct.

Senator DOMENICI. That's what FutureGen was.

Secretary BODMAN. That's correct.

Senator DOMENICI. Now from my standpoint I'm not going to—I want you to tell us one more time as brief as you can, why you cancelled it. What is the outcome going to be for America in terms of the utilization of our coal in some programmatic way by you as you push for the alternative? Could you do that one more time?

Secretary BODMAN. Sure. Look, I think this is a critically important program that is to say using coal. It's very important to the country that we find a way to use the coal that we have available. FutureGen, as we have revised it, I believe is current and that it deals with the current marketplace, that is to say, the existence of IGCC projects which are three in number that exist today. There's some 30 more that are in various stages of planning.

There seems to be, I hesitate to say it, because we don't know it yet, but there seems to be a commitment on the part of the industry that if we fund CCS they will build the IGCC plant. And I believe we will get the support of States. We have had a number of States, Florida, Kansas, the State of Washington, the State of Minnesota, the State of California, all of which have got either legislation or have outright turned down coal based projects based on the carbon dioxide emissions.

This, I think, is a reflection of—and that's only during this last year that we've sort of seen that occurring.

Senator DOMENICI. Yes, sir.

Secretary BODMAN. And so that's the reason that we have changed the program. It would have been a lot easier for me not to suffer Senator Durbin's criticisms and been a lot easier for me personally to have let this thing slip by and to go forward with the Alliance and have everyone be happy. In my judgment it was not the right thing to do.

And so I have acted in the way that I have acted and made the decisions that I have decided. But they were done in good spirit. They were done with good intentions. And they were done in order to try to protect the American taxpayer.

Senator DOMENICI. Now what's the result going to be the way you're doing it?

Secretary BODMAN. The result is going to be multiple projects, multiple programs. We don't have funding yet from Congress, but assuming we get funding and get the \$1 billion, \$1.3 billion over time, we'll have multiple programs, multiple projects in different geographical areas that will demonstrate on a commercial basis that this approach works.

Senator DOMENICI. Thank you very much.

Senator DORGAN. Senator Bond, or Senator Craig? I'm sorry.

COAL TECHNOLOGY

Senator CRAIG. Thank you, Mr. Chairman. Well, Mr. Secretary, I've listened with great interest because it's an issue that I have not focused on with the intensity that I might have had I been a coal producing State. But I do reflect some concern.

And the concern is we're about ready here in Congress to produce a climate change bill.

Senator DOMENICI. Right.

Senator CRAIG. And that more than likely will have a cap and trade scheme in it that is beyond the imagination of human kind to create, but we will create it. We'll create a board and we'll redistribute wealth in an unprecedented way. That may happen.

But something else could happen if the technology of coal isn't advanced as rapidly as we can advance it. We may set in motion a fuel switching reality in the utility industries of our country that could chase gas out of the stratosphere. We've already seen a huge relocation of gas affected industries into the Middle East.

Secretary BODMAN. I agree with you.

Senator CRAIG. Billions of dollars of investment going there now because it won't come here.

Secretary BODMAN. That's correct.

Senator CRAIG. And that's a tragedy. It is a tragedy of our economy. It is a reality of the markets.

Secretary BODMAN. You bet.

Senator CRAIG. What are we going to do if we are politically so stupid as to create a scheme we cannot even begin to proceed. And we create in the marketplace an anomaly of fuel switching before the technology gets to coal to make it clean. Now, I don't know that you can answer that question.

But let me tell you of my frustration because you just hit on it a moment ago when you said, it's very difficult to get a government organized. Government is about as nimble as a turtle with its head buried. And I'm not going to suggest that DOE has been much different. I think you reflected that in your statement of frustration a moment ago.

And I'm going to tell you that my frustration is that I sat down with a fellow by the name of Brian Foody, the CEO of Iogen Corporation a week ago after I had been up to Ottawa to look at the facility. And a sense that we're at the verge of dislocating the food

chain by the phenomenal acceleration of corn based ethanol and it was critically important that we bring to the market cellulosic based ethanol.

Secretary BODMAN. Right.

LOAN GUARANTEES

Senator CRAIG. They're not coming to the lower 48 now because they can't get the loan guarantee in a timely fashion. So they're going to build their first out of laboratory, commercial facility in Canada. And I and others had worked a long time to nurture this and move it rapidly starting in 2005.

But because those loan guarantees didn't come in 2007 and aren't out yet in 2008 their investors, Shell and Goldman Sachs said do it. Don't wait for the Government of the United States. Move. And they're moving.

Now we're going to get the technology in time, I suspect. But it's not going to be in the lower 48 to begin with. And of course I was excited about it. I was focused on it because it was Idaho.

Secretary BODMAN. Sure.

Senator CRAIG. Because they had found the kind of base of fuel of substance they needed, if you will, the cellulosic materials. Again, the nimbleness of government today in a time of urgency is to me, frustrating. And that's why I'm here today to listen with great detail about decisions made as it relates to where we're headed.

At a time when CEOs of utilities are telling me, we'll put some money up. Government can partner with us. We've got to get to the technology because if we don't and if you do, meaning if you do create a climate change policy, than we're going to see the escalation of power rates beyond our greatest imagination if we have to start fuel switching to meet the needs.

Any general comment you want to make on that?

Secretary BODMAN. Well, first of all on Iogen, the—and to defend my colleagues who are working on the loan guarantee office.

Senator CRAIG. Now, I agree, you're working now.

Secretary BODMAN. At the time the loan guarantees were first talked about we put out a request. I think there were 16 positive responses, one of which was Iogen.

Senator CRAIG. That's correct.

Secretary BODMAN. Iogen has never responded, sir, to my knowledge with a loan application. And so they are well down on the list in terms of where their problems are, at least as a—I asked because I, anticipating your question I asked that this morning. And so to my knowledge Iogen is not even considering coming here. So I can't respond to that other than saying in terms of the loan guarantee issue.

Senator CRAIG. Well it's my reaction based on my conversation with them and will not take this any further than to say the timeliness of where they are and where we are here with loan guarantees. And yes, they're in the 16. And they did make that final project sponsor group. Is the reality of timing that has been almost 4 years now in the making and yet not a loan. Are you prepared to make loan guarantees before the end of 2008?

Secretary BODMAN. Yes, sir.

Senator CRAIG. Ok. So that's—you're going to make it in a window of 3 years. And, you know, I and a good many members of this subcommittee have been terribly frustrated by that.

And my reaction is quite simple. Because we could not be nimble, we lost potentially, a substantial project for the lower 48. It is in the hemisphere. It will ultimately come if its technology is proven. And it appears that it can be. I've been there to see it. I'm no scientist, but it appears to be working.

And there's going to be heavy investment made in it now.

Secretary BODMAN. I hope that's the case.

Senator CRAIG. Enough said. Enough said. A frustration, let me say, registered. Thank you.

Secretary BODMAN. Thank you, sir.

Senator DOMENICI. What was that comment, sir? What was your comment? What was your comment? You said something.

Secretary BODMAN. I was just agreeing with the Senator, that's all.

Senator DORGAN. Thank you, Senator Craig. Senator Durbin.

ORIGINAL FUTUREGEN PROJECT

Senator DURBIN. Thank you, Mr. Chairman. Secretary, when you opened you said that the FutureGen project in your words in your written statement was unsustainable, politically and economically. You used an example, 37 communities resisted the construction of new coal-fired plants. I can tell you there was no resistance to the idea of building FutureGen in Mattoon, Illinois.

Secretary BODMAN. I'm glad to hear it, sir.

Senator DURBIN. Well, I think you're well aware they worked hard to bring that plant. There's no NIMBY involved here. So the political resistance to locating the plant, I don't know how that would apply to this circumstance at all.

The second point about whether this is economically sustainable. I'd like to take you back in history to February 2003 when President Bush announced this project. Now you weren't the Secretary at that time, but I'm sure you've reviewed what he had to say.

Secretary BODMAN. Right.

FUTUREGEN COST INCREASE

Senator DURBIN. He said that it would cost about \$1 billion. And he said that the Department of Energy, the Federal Government was going to carry about 80 percent of the cost.

You come to us today and say well, another reason why I ended FutureGen was the Federal Government was going to have to carry 74 percent of the cost. From the President's initial announcement the Federal Government was prepared to cover 80 percent of the cost.

Second, you say there was a scale up in cost. Mr. Secretary, when the President announced the \$1 billion, he announced it in 2004 constant dollars. He didn't build inflation into the estimated cost of the project. He knew. We knew. Everyone knew. The project would take time to build. And inflation would add to its cost.

Now there is an assumption moving from \$1 billion or \$1.1 billion to \$1.8 billion of an inflation rate for construction projects of 5.2 percent over the period of time to 2017. Do you dispute that?

Secretary BODMAN. Yes, sir.

Senator DURBIN. Do you think that any project that you are going to fund that involves construction will not face the same inflation rate of somewhere near 5.2 percent over a similar period of time?

Secretary BODMAN. No, I do dispute that. I think the issue of—first of all, we had that cost estimate verified in, I think I mentioned, in the middle of 2005. So, and it was \$1.1 billion, pardon me, \$1.1 billion.

In 2 years time this escalated from \$1.1 billion to \$1.8 billion.

Senator DURBIN. Well let me stop you there and ask you—

Secretary BODMAN. And—

Senator DURBIN. So was there a change in the project? Had they somehow or another changed the scope of the project in that period that resulted in this increased estimate as to its cost?

Secretary BODMAN. In fact we talked to them about reducing the scope of the project.

Senator DURBIN. But was there a change in the original scope of the project?

Secretary BODMAN. No.

Senator DURBIN. I know there wasn't.

Secretary BODMAN. No.

Senator DURBIN. And you make that point in your letter—

Secretary BODMAN. Right.

Senator DURBIN [continuing]. To the FutureGen Alliance. So from the moment that President Bush announced this project until you started getting worried about its cost there was no change in its scope. The only difference is the estimate of what inflation will be.

Secretary BODMAN. It's not a matter of inflation, Senator.

Senator DURBIN. Well, please explain to me. If you're not changing the scope of the project, how do you move from \$1.1 billion to \$1.8 billion?

Secretary BODMAN. Because the cost of doing this and undertaking this project reviewed as having escalated by far more than 5 percent a year.

Senator DURBIN. Why?

Secretary BODMAN. I don't have an answer to that.

Senator DURBIN. Well that is the critical question. Because I think it gets to the heart of your decision. Any time that you've expressed concern to me about the FutureGen project—

Secretary BODMAN. Right.

Senator DURBIN. It wasn't about whether there would be a NIMBY that Mattoon may someday change its mind about a coal-fired plant.

Secretary BODMAN. No. That was not the concern.

Senator DURBIN. So there was no political sustainability question. The only questions you've ever raised to me relate to cost.

Secretary BODMAN. That's correct.

Senator DURBIN. And if the project itself is still the project that President Bush announced.

Secretary BODMAN. Yes.

Senator DURBIN. In February 2003, the FutureGen Alliance has not added to the cost of that project. What the—if there's any in-

crease it's because of your best guess and their best guess as to what inflation would do.

Secretary BODMAN. That's far more than inflation.

Senator DURBIN. Explain to me what is the difference then?

Secretary BODMAN. It's one—the difference in 2 years time of going from \$1.1 billion to \$1.8 billion. It's more than inflation.

Senator DURBIN. Explain to me what was it?

Secretary BODMAN. That's a 50 percent increase. That's 25 percent a year.

Senator DURBIN. Well the question is why. Why did it increase in cost from \$1.1 billion to \$1.8 billion?

Secretary BODMAN. I don't know the answer to that. But I—

Senator DURBIN. Well isn't that a question you should be able to answer before you pull the plug on a project after 5 years?

Secretary BODMAN. No, I wouldn't think so.

Senator DURBIN. I would think it's the first.

Secretary BODMAN. Let me explain to you, sir. I raised the issue with respect to the chairman of American Electric Power. And I did that directly with him, personally.

And I told him that this would not, in my judgment, if it was \$1.8 billion, and I could live with a \$1.3 billion. And I told him I would live with—try to get the \$1.3 billion out of OMB that in the case of American Electric Power and the Alliance that I wanted them to share in the future on a more equitable basis of what I viewed a cost share ought to be. It ought to be 50–50. And I never got that.

Senator DURBIN. What was the President's original proposed cost share? It was 80–20.

Secretary BODMAN. The President's original cost share was apparently 80. I don't know that.

Senator DURBIN. Yes.

Secretary BODMAN. Ok.

Senator DURBIN. So in good faith all of these States and all of these companies engaged in their pursuit of this project understanding that they would be responsible for 20 percent of the cost.

Secretary BODMAN. Senator?

Senator DURBIN. You can not explain to me why there's such a variance in the estimated cost of the project. And you certainly are now criticizing a percentage, 74 percent, which is lower for the Federal Government than the President originally envisioned. I can't follow you. I don't think this was—

Secretary BODMAN. You can't follow it? You do follow me, sir.

Senator DURBIN. No, I don't. I tell you, you say this was an act of political courage when you can't answer these basic questions.

Secretary BODMAN. I do answer the basic questions, sir.

INCREASE COST OF PROJECTS

Senator DURBIN. You have not. You have not explained to me the difference.

Secretary BODMAN. There has been an escalation in the cost of all projects—

Senator DURBIN. Yes.

Secretary BODMAN [continuing]. Throughout the world.

Senator DURBIN. Yes.

Secretary BODMAN. Right?

Senator DURBIN. Yes. It's called inflation.

Secretary BODMAN. If that's how you want to describe inflation.

Senator DURBIN. That's what I'll call it. Let's call it inflation.

Secretary BODMAN. You can call it inflation, but there is an increase in costing of what it costs to undertake capital projects.

Senator DURBIN. And so it—

Secretary BODMAN. There is also a problem with respect to people, getting people to do the work.

Senator DURBIN. So if we face a project.

Secretary BODMAN. Yes.

Senator DURBIN. That is a long term project that involves inflation in construction cost.

Secretary BODMAN. Yes.

Senator DURBIN. You are going to show the courage to pull the plug on that project?

Secretary BODMAN. We'll show the courage to, at a minimum, try to renegotiate the cost sharing in the future such that there is, what I consider to be a more equitable sharing of future cost.

Senator DURBIN. Well I thank the subcommittee. You've given me more than enough time. But I would not describe it as courage to ignore inflation any more than it is courageous to ignore gravity.

Secretary BODMAN. Well.

Senator DURBIN. And in this case that project cost more because it's being anticipated that it would take until 2017 until completion. And to think that the President's original \$1 billion estimate would not increase over that period of time is fact less.

Secretary BODMAN. It did increase. It went to \$1.8 billion.

Senator DURBIN. It did. And any project would have.

Secretary BODMAN. And it was probably headed to something significantly more than that.

Senator DURBIN. And I hope—

Secretary BODMAN. And you want to have \$3 billion shipped to Illinois. More power to you, Senator and get it done.

Senator DURBIN. We were in competition with a lot of States including Texas.

Secretary BODMAN. I understand that. And I'm all for you. I really am. But I—

Senator DURBIN. I'm not sure you've shown that, Mr. Bodman. Thank you.

PROJECT MANAGEMENT

Senator DORGAN. Senator Domenici, did you have a further inquiry?

Senator DOMENICI. I thought I had one here just a second ago, but it got away from me. Let me just think here a minute. I wanted to ask Mr. Bodman a question.

At the point in time when you looked at the program and saw that the price was what everyone calls, escalating rapidly.

Secretary BODMAN. Right.

Senator DOMENICI. How much money did you actually have that you could apply to the project? And by that question, I mean, weren't you and/or others going to have to get more money from the Government?

Secretary BODMAN. Oh, yes, sir. We think we had \$160 million.
 Senator DOMENICI. And how much were you going to have to look for, the extra there, \$500 million?

Secretary BODMAN. Well, \$1.3 billion. So it was going to go up by \$1.1 or \$1.2 billion.

Senator DOMENICI. Alright.

Secretary BODMAN. And it was likely to go beyond that.

Senator DOMENICI. And was that part of your consideration?

Secretary BODMAN. Yes, sir.

Senator DOMENICI. That you might not get the money?

Secretary BODMAN. Oh, absolutely.

Senator DOMENICI. Alright. Thank you very much. Thank you, Mr. Chairman.

Senator DORGAN. Mr. Secretary, before you leave, Senator Durbin asked a question, I think, that's an important question. And the fact is you know and I know that under a number of administrations of both parties, big projects managed by the Department of Energy, have in many cases turned out to be vastly more expensive.

Secretary BODMAN. Right.

Senator DORGAN. And in many cases mismanaged, frankly.

Secretary BODMAN. They have been.

Senator DORGAN. And so we have a history here of big projects which come in costing much, much more than was estimated. You know, the question my colleague asked was a pretty reasonable question. And that is what's causing this? What causes a circumstance where you go from \$1.1 to \$1.8 billion cost?

And you say you don't know. But something caused it. And it seems to me reasonable for us to try to figure out not even just in this project, but what causes these things?

Secretary BODMAN. I will be happy to get you an answer to that. [The information follows:]

PROJECT MANAGEMENT COST INCREASES

The primary reasons for the cost increases in the FutureGen project were unprecedented escalations in materials, equipment and labor since the initial DOE estimate. These escalations were significant and occurred among many construction-related activities. The estimates were confirmed by comparisons with well-respected industry indices.

With respect to our other, more typical DOE capital asset line-item projects, the biggest reasons cited for most cost variances, as documented in the Department's recently completed Root Cause Analysis report, include, but are not limited to, inadequate upfront planning and risk management, unrealistic estimates of cost and schedule, insufficient numbers of skilled and trained contract and project management professionals, ineffective prioritization and resource allocation, and lack of alignment and integration between contract and project management functions and organizational elements. The Department has recently completed a Corrective Action Plan to address the most significant root causes, and we will now begin implementing that plan. It must be recognized that some of these root causes will require additional resources and time to institutionalize the corrective actions.

Secretary BODMAN. I can tell you that in my judgment we are doing a much better job than we have ever done before of managing the projects within the Department. And we have, for the first time in our environmental management area, which is basically all, the entire budget, all of \$5.5 to \$6 billion is all projects basically.

And we, when I arrived on the scene we didn't even have people who were trained and certified as project managers managing the projects. We do now. And for the first time we have now had an outside auditor, if you will, review all these projects.

And we are, I think, in much better shape than we have ever been before. And so I would comment on that. If you ask me the specifics of other than inflationary pressures, I think there have been pressures beyond what I think of as inflationary pressures which are 4 to 5 percent per year that have accrued in the case of large capital projects throughout the world.

It's very hard to get the people. It's very hard to get the equipment. It's very hard to get the materials to build the kind of structures that are needed for this project.

NEW INITIATIVES

Senator DORGAN. Well, I don't know what we should do about FutureGen. In many ways the new administration will inherit the bigger question, I think because I believe what we will end up doing is retaining the funding that's been appropriated for FutureGen allowing perhaps in February of next year for a new administration to make a judgment do they continue, don't they continue. But I come back to the—I misplaced a piece of information I was going to give you.

Come back to the point of FutureGen or not, in order for us to work through this climate change and energy intersection that we've come to we have to use coal. In order for us to use coal we've got to understand the capability that technology will give us to continue to use coal. And the Clean Coal Power Initiative, I said to you, the budget and again, you can't tell me how much you've asked for.

But the budgets that have come to us from the President have under funded clean coal technology and the Clean Coal Power Initiative. So, you know, we're far short of what had been pledged. And I think what you're doing is you're adding in the normal coal research we've done all along the way into coal technology.

Secretary BODMAN. Right.

Senator DORGAN. Well we would have done that anyway, Mr. Secretary. But these new initiatives, try to figure out how do we capture carbon and how do we do the other things. They're very important and I'm disappointed that the administration has under funded them.

Now I'm working with my colleague, Senator Domenici and others just to try to find a way to provide robust funding for that issue. We need on an urgent basis to do this and move forward because if we're going to continue to use coal we have to unlock the mystery of how to do that by capturing carbon and sequestering carbon.

Secretary BODMAN. And to do it on a retrofitted basis.

Senator DORGAN. Well.

Secretary BODMAN. Because that's what CCPI is all about, I believe.

Senator DORGAN. Well, I understand. But, I mean there's a whole series of things we have to try to think through here in terms of how and where we commit our resources. I just showed you a

chart, 80 percent into 2030. Eighty percent of the carbons are going to come from existing plants.

And how do we, you know, retrofit that. Should we continue with FutureGen? Should we change FutureGen to Big Bang FutureGen to three smaller FutureGen?

I don't know the answer to that, but—

Secretary BODMAN. This is an EIA estimate, sir?

Senator DORGAN. Yes.

Secretary BODMAN. EIA what they do is to take current technology. They do not anticipate any change in technology. I would hope that between now and 2030, in 22 more years we will have material changes in technology.

Senator DOMENICI. I would hope so.

Senator DORGAN. Well I hope that among those material changes in technology are the changes that we drive urgently and aggressively with the funding provided by this subcommittee.

Secretary BODMAN. I certainly hope that as well, sir.

Senator DORGAN. Mr. Secretary, we appreciate your being here today. You'll be available I trust to receive questions in writing that we might wish to address.

Secretary BODMAN. I'd be happy to do that.

Senator DORGAN. Thank you very much for being with us today.

Secretary BODMAN. Thank you.

Senator DOMENICI. Thank you, Mr. Secretary.

Senator DURBIN. Mr. Chairman?

Senator DORGAN. Next—Yes?

PREPARED STATEMENT

Senator DURBIN. May I ask consent that my full statement be part of the record?

Senator DORGAN. Without objection.

[The statement follows:]

PREPARED STATEMENT OF SENATOR RICHARD J. DURBIN

INTRODUCTION—A COMMITMENT TO FUTUREGEN AT MATTOON

Thank you, Chairman Dorgan and Ranking Member Domenici, for holding this hearing today.

We have a dilemma in this country. We need to secure America's energy supply. And we have to slow global warming. Coal combustion with carbon capture and sequestration may be our best hope. Time is running out, though. We need to develop and test these technologies and bring them to commercialization, and we need to do it quickly.

The FutureGen project at Mattoon is our best hope for building and operating a near-zero-emission, coal-fired power plant. After 5 years of progress, the Department of Energy's attempt to scuttle this program is the wrong decision at the wrong time. I am determined to see the Mattoon project get back on track. The climate problem we are facing is too urgent to tolerate any more stalling by this administration.

FUTUREGEN AS ORIGINALLY CONCEIVED

President Bush rolled out the FutureGen Initiative in February 2003 with great fanfare. The administration touted FutureGen as the centerpiece of its energy policy and as its response to global warming concerns.

The Department launched the FutureGen initiative as a full-scale, integrated demonstration of advanced coal gasification, electricity production, and carbon capture and sequestration.

The goal has always been to optimize the entire system to build, to quote DOE's website, "a technically cutting-edge power plant that is intended to eliminate envi-

ronmental concerns associated with coal utilization . . . The prototype will be the cleanest fossil fuel fired power plant in the world.”

DOE ABANDONS MATTOON

This was the flagship project of the President’s clean coal program. It went through a 4½ year independent, scientifically based site selection process—and the planners chose Mattoon, Illinois, as the best location for the FutureGen demonstration plant.

Governors and leaders of nine States agree with that decision.¹ Those nine states represent three-fourths of the coal mined in the United States and more than one-half of the electricity produced from coal.

Then in January 2008, 1 month after the site selection announcement and after nearly 5 years of planning, the Department of Energy decided to abandon the program. It’s a decision that seems to defy explanation.

Let us be clear. DOE did not put an end to a project that only existed on paper. The group has gone into field work and site mapping. DOE wants to bring FutureGen to a screeching halt just as the project was about to move into three-dimensional seismic testing around the Mattoon site and just as plans were being made for a 1 mile-deep well.

THE EFFORTS OF ILLINOIS

Seven States with 12 sites put together proposals to host FutureGen. Those States and communities competed for this project in good faith, trusting the administration’s commitment to explore a promising technology to fight global warming.

I can’t speak for the other States, but I can tell you that the people of Illinois put their heart and soul into bringing FutureGen home.

The Department’s requirements were ambitious by any standard—they required all geographic, socioeconomic, environmental, regulatory, legal, and technical information that’s necessary for the Environmental Impact Statement be completed in only 12 months.

Nine Illinois State agencies; 5 colleges and universities; 12 private companies; 2 research institutions—all worked day and night to meet DOE’s deadlines.

In Illinois, private groups and the State legislature worked together to come up with a compelling \$90 million incentive package. They put together low-interest-rate loans, tax credits, liability protection, employee training, public improvement funding, and support for the environmental impact statement process. The Mattoon City Council rezoned more than 500 acres west of the city from rural-suburban to industrial use to support a FutureGen plant.

The result: A set of documentation provided to DOE that totaled 12,300 pages, weighing 133 pounds. That’s a stack of paper 49 inches tall—over 4 feet. The State of Illinois spent almost \$3 million to respond to DOE’s new program—and that does not count the more than \$3 million raised by the State’s private partners.

Remember, seven States put resources into the FutureGen competition. I can’t speak to the heft of the proposals from Texas, but I’m confident the other finalist worked with just as much fervor.

And think about the people who work for Secretary Bodman. How did the decision to pull the plug on this project affect the program managers and specialists who dedicated themselves to this effort for 5 years, based on the promise of clean coal.

Mattoon, a city of 18,000 people, is closely watching today’s hearing. This is the same city that Under Secretary Albright derided as “some swamp in Illinois.”

Unlike DOE management, though, the people of Mattoon understand that America has a responsibility to address climate change. They understand that the FutureGen program is a critical next step toward large-scale carbon sequestration. The people of Mattoon have done the hard work of demonstrating the merits of their site. Their sleeves are still rolled up, waiting to begin the next phase of the project.

DOE’S INADEQUATE EXPLANATIONS

I am looking forward to hearing Secretary Bodman’s explanation for his decision in January. I am aware of two rationalizations—one is program cost and the other is recent advances in technology. Neither justifies the Secretary’s decision.

Time and again over the past few weeks Secretary Bodman has claimed that the Mattoon project costs had just grown too large. One might have thought the Sec-

¹ Illinois, Indiana, Kentucky, Michigan, Ohio, Pennsylvania, West Virginia, Wisconsin and Wyoming.

retary would discuss that question with Congress before making his unilateral decision.

Instead, the Secretary has proposed to replace the integrated project in Mattoon with several, smaller projects that haven't been developed. It is inconceivable that this approach would cost the Government less money while achieving the intended goals.

Mr. Thompson will be able to address the second argument—whether coal gasification technology has made the great strides in recent years that DOE claims. It is my understanding that Integrated Gasification Combined Cycle technology is anything but a mature technology. It's hard to imagine that this technology has reached a point that justifies such a drastic and sudden change of course. It's been more than a decade since the United States has seen a commercial-scale demonstration of this kind of electric power generation.

DOE AND THE UNITED STATES HAVE LOST CREDIBILITY

DOE has misled its industrial partners. The Department showed every indication of moving forward with the FutureGen program up until it became clear that the Illinois site would be chosen by the Alliance as the technically best option. This sorry episode has not only stained DOE's credibility, but has also tarnished the credibility of the United States with our partners in China, Australia, and the UK.

THE FUTUREGEN ALLIANCE IS AN UNPRECEDENTED INDUSTRIAL PARTNERSHIP

The FutureGen Alliance is an unprecedented partnership among coal and power industry leaders. Its U.S. members include American Electric Power, Consol Energy, E.ON U.S., Peabody Energy Corporation, Rio Tinto Energy America, and Southern Company, among others. International members include Anglo American, BHP Billiton, Xstrata Coal, and the China Huaneng Group.

These leaders have come together because they are committed to contributing to global warming solutions. They know that clean coal technologies are not yet available and that we need to work together—Government and industry—to develop those technologies that can be commercially deployed.

CLIMATE CHANGE AND THE NEED FOR COAL

We're starting to wake up to the reality of climate change as a result of human activities. Global average surface temperatures are rising year after year at an ever-increasing rate. It is no exaggeration to say that global climate change is the greatest threat of our time.

Meanwhile, coal is not going away. We cannot replace one-half of our electricity supply with a snap of the fingers. That is why the FutureGen program, as originally conceived, is so important.

FUTUREGEN AT MATTOON SHOULD PROCEED

The good news is that there is still hope to correct DOE's ham-handed management of this program. The FutureGen project at Mattoon meets all the technical goals as a commercial-scale demonstration. The Mattoon FutureGen project is years ahead of any new program DOE could possibly put in place to demonstrate large-scale carbon capture and sequestration from a coal-fired power plant. The urgency of the problem demands that we not abandon the progress that has been made over the past 4½ years.

Senator DORGAN. The next witness at today's hearing will be Paul W. Thompson, the chairman of the board, FutureGen Industrial Alliance. Mr. Thompson, you may come forward and may proceed.

Mr. Thompson, we appreciate your being with us today. Your entire statement will be made a part of the record and we would urge you to summarize and then we will have some questions. You may proceed.

STATEMENT OF PAUL W. THOMPSON, CHAIRMAN OF THE BOARD, FUTUREGEN INDUSTRIAL ALLIANCE, INC.

Mr. THOMPSON. Thank you. I need to find my glasses first, sir. Is that on?

Senator DORGAN. We have some we could loan you.

Mr. THOMPSON. I have them, thank you. Thank you, Senator and the subcommittee. I appreciate the opportunity to be here in front of the subcommittee.

As indicated I am the chairman of the board of the FutureGen Industrial Alliance. The Alliance is a global, non-profit consortium of 13 energy companies formed at the request of the U.S. Department of Energy to co-fund, design and construct the world's first full-scale, near zero emission coal fueled power plant with hydrogen production and 90 percent CO₂ capture and sequestration. In addition to my role as Alliance chairman I am senior vice president with E.ON U.S. Energy Services.

And I would add in that capacity I am responsible for over 10,000 megawatts of generation. So I'm quite familiar with much of what is going on in our power production industry. I would like to address three topics: my view on the enormous benefits of FutureGen at Mattoon, project costs and the Alliance view on DOE's restructured approach.

With respect to my first point, climate change is one of the most pressing and most challenging environmental concerns we face globally. The success of the policy that is ultimately adopted and our economic future will hinge on the availability of affordable, low carbon technologies. FutureGen at Mattoon offers the opportunity to advance many technologies faster and further than any other project in the world. President Bush is to be commended for originally launching it.

FutureGen at Mattoon will meet or exceed all low emission goals including 90 percent CO₂ capture which DOE has reported to Congress numerous times as essential to our energy future. Also, it is a fully integrated plant based on commercial scale component technologies. As a utility industry executive I would emphasize the importance of seeing a fully integrated plant come to fruition.

Importantly and unlike entities that will participate in DOE's restructured approach, the FutureGen Alliance is a non-profit enterprise. And every Alliance member has agreed to forego all rights to intellectual property and revenue sharing. This will enable the Alliance to share important findings from the project with the Nation and world which will foster rapid, widespread commercial deployment of the technology.

FutureGen at Mattoon has demonstrated already 5 years of successes such as one, using a first of its kind citing process which can and should serve as a model for future commercial projects. A site that is ready to go has been selected on a fair, non-political and competitive basis. That site is Mattoon, Illinois.

The site selection of this site relied heavily on scientific expertise within the DOE laboratory system and other premier scientific institutions. And it included addressing complex legal, liability, regulatory and site geology issues. It will take years for new projects to go through this process.

Second, based on extraordinary work by the States of Illinois and Texas, the Alliance, DOE and many other institutions a nearly 2,000 page environmental impact statement has been issued by DOE which concludes the Mattoon site is environmentally acceptable.

And three, a team of nearly 50 engineers and scientists have completed an initial conceptual design and initial cost estimate for the project and far along on the next phase of design and more detailed cost estimate.

This leads me to my second topic, project cost. DOE cites an original project cost of \$950 million which is in constant fiscal year 2004 dollars. The total estimated project cost in as spent or nominal dollars through 2017 is \$1.8 billion. The difference between the two numbers is inflation. It is not scope changes. DOE has acknowledged this on numerous occasions.

After 3 months of review and negotiation DOE accepted these costs when they signed the cooperative agreement that governs the project. It is difficult to understand why these costs were acceptable in March 2007, but in January 2008 they formed the primary basis for terminating the project. Given that the Nation appears to be on the cusp of a massive effort to regulate CO₂ emissions that may cost electricity consumers across the Nation hundreds of billions of dollars over the coming decades, we believe it is reasonable and necessary to invest this \$1.8 billion on the front end to prove out the technology.

Just as important as the \$1.8 billion cost is what the non-profit Alliance has offered to do to mitigate the Government's financial exposure. First we are contributing nearly \$400 million of cash. Second, as a non-profit venture hundreds of millions of dollars of revenue from the electricity sales will be used to either offset project costs or be invested in public benefit R&D. Industry will never receive a single dollar of profit from this project. Third, after the project's mission is fulfilled and the plant is sold, DOE will be repaid in part or in full for its investment. Unlike DOE Industry Alliance members will not receive a single dollar of repayment from investment nor will they receive any proprietary intellectual property benefits.

We are very mindful of the fact that appropriated dollars are a limited and valuable resource. But we believe that the FutureGen at Mattoon project is a good investment for our Nation. And I reiterate our offer to the DOE to explore reasonable avenues to mitigate the Federal Government's exposure.

Moving to my third topic, DOE's proposed restructuring. We are disappointed in DOE's abrupt and unjustified change in course. The Department has also cited a changing marketplace as the basis for their decision.

While there are numerous proposed IGCC projects as has been discussed here, it is widely recognized within industry, the industry that I participate in, that very few of these projects will come to fruition. In fact since the DOE signed the cooperative agreement in March 2007, the number of commercial IGC proposed projects have declined, not increased. Further, should DOE's restructured approach move forward it has a number of business, technical and financial issues which must be addressed.

Importantly it is under funded. An under funded approach to such a massively complex problem using several small projects attached to commercial ventures did not make sense for landing men on the moon. And it does not make sense for solving the climate change challenge.

In a House hearing last month DOE also acknowledged that their new plan will result in up to 5 years of delays. Further DOE testified that they may not meet the critical goals of 90 percent CO₂ capture. This delay and reduced standards do not make sense. FutureGen at Mattoon is already 5 years down the path of success. And it would be a huge mistake to move backward on the progress we have already made.

PREPARED STATEMENT

In closing as chairman of the FutureGen Alliance Board of Directors I want to convey our unwavering commitment to the continuation of FutureGen at Mattoon. We remain open and willing to work with the Congress and the Department of Energy to put FutureGen at Mattoon back on the fast track. This concludes my remarks. And I welcome the subcommittee's questions.

[The statement follows:]

PREPARED STATEMENT OF PAUL W. THOMPSON

The FutureGen program is a global public-private partnership formed to design, build, and operate the world's first near-zero emission coal-fueled power plant with 90 percent capture and storage of carbon dioxide (CO₂). It will determine the technical and economic feasibility of generating electricity from coal with near-zero emission technology. FutureGen has 5 years of progress behind it. More than \$50 million have been obligated to the effort with the majority spent. It is positioned to advance integrated gasification combined cycle (IGCC) and carbon capture and storage (CCS) technology faster and further than any other program in the world. The location of the plant will be Mattoon, Illinois. The nonprofit structure of the FutureGen Alliance, and involvement of 13 companies that operate on 6 continents, is consistent with its mission to facilitate rapid deployment of near-zero emission technology not only in the United States, but throughout the world.

Climate change is one of the most pressing, and most challenging, environmental concerns we face, from both a domestic and international perspective. Our Government, and other governments around the world, either intend to, or are in the process of, developing policies to address the concern. Irrespective of which specific climate policy is ultimately adopted by the United States, the success of that policy and our economic future will hinge on the availability of affordable low-carbon technology. Nuclear, renewables, biomass, and efficiency will all be part of the low-carbon technology solution. However, coal is used to generate over 50 percent of the electricity in the United States, and is projected to remain the backbone of the U.S. electricity system for most of this century. Given that the growing economies of China and India will be fueled with coal plants, the availability of affordable, near-zero emission coal technology, incorporating CCS, is essential to our future energy security.

The Federal Government has a pivotal role to play in fostering the development, demonstration, and deployment of near-zero emission coal technology. It is important that, as a Nation, we invest at the scale required to develop, prove, and deploy CCS technologies to the marketplace. While estimates vary, the required Federal investment is certainly in excess of \$10 billion over the coming decade. This investment in our Nation's future must be supported by the development and demonstration of near-zero emission coal technologies and CCS in a variety of applications.

The U.S. Department of Energy (DOE) is to be commended for its vocal support of near-zero emission coal technology, including CCS. Its support of this technology was recognized in backing the FutureGen program as originally envisioned, but a recent proposal to restructure FutureGen fails to recognize the scale of the challenge that this Nation, and indeed the world, is facing. DOE's proposal to restructure the FutureGen program will delay technology development and integrated demonstration of commercial scale CCS by 5 years or more. It backs away from a nonprofit partnership that was created, at the request of DOE, to act in the public benefit and broadly share its technical results throughout the world. It rebuffs the participation of international companies (and countries) that are critical to the ultimate deployment of clean coal technology around the world. It undermines the reliability of the U.S. Department of Energy—and the United States—as a dependable partner.

Therefore, regardless of what other projects or what type of restructuring DOE proposes, it is essential that the Department reaffirms the United States' position as a global leader in near-zero emission coal technology and CCS development by maintaining its historical position that FutureGen at Mattoon is the flagship program for advancing CCS technologies.

BENEFITS OF FUTUREGEN AT MATTOON

FutureGen, located in Mattoon, Illinois, is in the national interest and is advancing IGCC technology with CCS faster and further than any other project in the world. Some key features of this program include:

- FutureGen at Mattoon Offers DOE an Opportunity to Beat its Proposed Timeline.*—DOE's January 15, 2008 Request for Information (RFI) suggests an on-line date of 2015 for projects using its restructured plan. In recent testimony before the House Science Committee DOE suggested 2016 or 2017. The FutureGen Alliance has already delivered 5 years of progress, including contract negotiations, an enthusiastic and committed local community, a site that is technically and legally ready to go, a design and cost estimate, a final environmental impact statement, vendor relationships, and a team of 50 engineers and scientists. Prior to DOE-imposed delays FutureGen at Mattoon was on-track for a 2012 start-up. Even with these delays, no fully integrated, near-zero emission power plant project in the world can compete with FutureGen in terms of its ability to move forward with urgency on the required technology development and demonstration.
- FutureGen at Mattoon Will Meet or Exceed all DOE Emissions and CO₂ Capture Goals.*—All emissions and CO₂ capture criteria included in the 2004 FutureGen Report to Congress and DOE's current Request for Information (RFI) will be met by FutureGen at Mattoon, including 90 percent CO₂ capture. It is imperative that DOE maintain the requirement of 90 percent CO₂ capture from the entire facility for the FutureGen program.
- FutureGen at Mattoon is Fully Integrated and at Commercial Scale.*—FutureGen at Mattoon incorporates a commercial-scale gasifier and commercial-scale "Frame 7" turbine. As configured, and with the commitment to share lessons learned widely, it gives industry a chance to learn about the cost, performance, and operating strategies for an integrated system with CCS. This knowledge will be directly applicable to the marketplace.
- FutureGen at Mattoon is a Hallmark for Public Benefit and Information Sharing.*—As a nonprofit enterprise, the FutureGen Alliance will broadly share information from the project, facilitating the deployment of commercial, near-zero emission power plants throughout the world. It is appropriate for DOE to provide cost sharing for additional commercial CCS projects to facilitate deployment of CCS technology, but it must recognize that commercial projects, such as those being solicited under DOE's restructured plan, by their very nature will feature protection of technological know-how and intellectual property within individual companies rather than sharing it for broad benefit.
- FutureGen at Mattoon is a Model That Provides International Involvement at an Unprecedented Level, Which is Essential to the Rapid Deployment of CCS Technologies.*—Thirteen companies with operations on six continents are participating as members of the Alliance. Climate technologies must be globally accepted and globally deployed, or they will not be effective. International participation has been exceptionally well-managed and has been a cornerstone of the information sharing in the program. No other project or program can replicate FutureGen at Mattoon's level of international involvement. We need to remember that we are all striving to address "global climate change" not simply "U.S. climate change." What better framework than a global public-private partnership to develop and establish the acceptable approaches to measure, monitor and verify that CO₂ has been successfully captured and permanently stored.
- FutureGen at Mattoon Provides a Platform for Testing Advanced Technologies, Which Accelerates Technology Development and Saves the Taxpayers Money.*—A power plant constructed and operated by any for-profit entity must by its nature operate as much as possible. There is no incentive to periodically shut down to cooperate with the DOE and technology providers to install and test new technologies so as to keep improving the performance and driving down the costs of zero-emission technology. Maximizing revenue rather than advancing technology is a duty to both ratepayers and shareholders.

Once built, and power generation, carbon capture, and sequestration operations are underway, FutureGen at Mattoon can serve as a test bed for advanced technologies emerging from DOE's Fossil Energy R&D program and industry R&D ef-

forts. Such testing will not interfere with the primary mission of the facility to prove integrated CCS technology at a 90 percent capture level and sequester a minimum of 1 million tons per year of CO₂, and to develop and prove cost-effective approaches to advancing CCS technology. Absent FutureGen at Mattoon, alternative testing approaches will be far more expensive to both industry and taxpayers. Areas where DOE expects advancements to occur include oxygen production, gasifier improvements, gas clean-up, H₂ and CO₂ separation, H₂ turbine advancements and fuel cells. By proposing to end its support of FutureGen at Mattoon, DOE will be increasing the cost and difficulty of testing the very advanced technologies that its program managers seek to develop and deploy.

PROJECT COSTS AND FINANCING

In DOE's March 2004 report to Congress, DOE estimated the project cost as \$950 million in fiscal year 2004 constant dollars. The estimated gross project cost in as-spent dollars through 2017 is \$1.8 billion. The difference between these figures (\$950 million and the \$1.8 billion) is recent and projected inflation/escalation. There is no change in project scope. In preparing the \$1.8 billion estimate, aggregate future inflation across the project was assumed to be 5.2 percent per year through 2017. This is higher than general rates of inflation, but is consistent with inflation rates for heavy construction and the process equipment industry over the past 5 years. These higher rates of inflation will likely be seen by all power-related projects, including FutureGen at Mattoon and other projects that DOE might advance. It is also important to note that this assumed rate of inflation is a long-term average. Finally, the \$950 million is expressed in fiscal year 2004 constant dollars and the \$1.8 billion is expressed in as-spent dollars; therefore, it is technically incorrect to characterize the cost as having doubled. This would be comparing apples and oranges.

In March 2007, after reviewing the \$1.8 billion project cost estimate, DOE signed a legally binding agreement to conduct the FutureGen project. Although the project cost estimate has not changed since DOE's original signing of the agreement, in a January 30, 2008 letter, DOE notified the FutureGen Alliance that it wanted to terminate support for FutureGen at Mattoon, citing two concerns:

- “the Department's serious concerns over the substantial escalation of projected [project] costs”; and
- “the [FutureGen] Alliance's insistence regarding *project financing*” (emphasis added).

DOE's letter goes on to state that the Department cannot agree to the Alliance's request to “satisfy a substantial portion of its cost share commitment with borrowed funds using FutureGen assets as collateral” and concludes that “the Alliance's desire to mortgage the FutureGen project would have subordinated the taxpayers' interest and placed DOE—the majority owner of the project—at risk of having to surrender the facility to the Alliance's outside lenders had the Alliance withdrawn from the project or defaulted on its debt repayment obligations.” The letter states that “[i]n short, the financing approach proposed by the Alliance not only represented a substantial departure from DOE practice concerning projects in which the Government bears a majority of costs, but would have significantly increased taxpayer risk as well.”

The Alliance takes issue with both of DOE's points:

- Costs have not escalated since DOE's last review of the cost estimates for the project, so there is no basis for DOE's apparent surprise about the projected costs for the project. Also, following completion of the next design phase, all parties will have the opportunity to review refined site-specific cost estimates before proceeding with final design and construction.
- Third-party financing for power plants is a commonly used tool to help ensure project success. Nearly every coal-fueled power plant project in the country, including DOE co-funded efforts, has involved financing. Further, the Alliance is largely providing cash to the project and the financed component is relatively small.

With respect to cost escalation, the DOE letter acknowledges that the change in projected costs, which occurred prior to their last review, “appears to be largely attributable to market conditions.” As the letter appears to recognize, such costs are not the result of any mismanagement by the Alliance. Rather, DOE and the Alliance recognized up front that market conditions were an uncertainty that could affect the cost of the project. Article 21 of the Cooperative Agreement states that, “Given the nature of this first-of-a-kind Research and Development project, DOE and the Recipient recognize that many uncertainties (e.g., plant design, selection of a site, construction and operations, market conditions, the impact of DOE requirements on

any potential cost increases to subcontractors who bid the project, and the project schedule, CO₂ storage and MMV, and market conditions for power plants and commodities) still exist in formulating a firm estimated cost.” In fact, large construction and infrastructure projects throughout the global economy are affected by these same market conditions. There is no reason to believe that any alternatives to FutureGen at Mattoon would not also be affected by these same market conditions and cost impacts.

With respect to financing, it should be noted that the Alliance, as a 501(c)(3) organization, relies upon contributions from its member companies as a source of its industry cost share. The Alliance’s member companies will donate nearly \$400 million to this DOE project, and unlike with other DOE clean coal technology projects, they will gain neither financial return nor intellectual property. This contribution is spread over approximately 8 years. However, the peak construction cost—and thus peak cash outflow—occurs in the middle years of the project. The Alliance proposes to use financing to match construction cash flow requirements with member company cash contributions, and also as a risk management tool to handle potential cost increases in the future, if they should occur.

Specifically, the Alliance has proposed the following approach to DOE to achieve these goals and address DOE concerns, even though the Alliance does not find DOE’s concerns fully founded:

- DOE will have an opportunity for partial-to-full repayment.
- Alliance member companies have no opportunity for repayment.
- Each Alliance member company would make a minimum dollar pledge. This would ensure that the companies would have “skin in the game” and not use financing to avoid meaningful industry cash contributions.
- The Alliance would use a modest portion of the plant asset, which the Alliance is helping to purchase, as collateral for financing, as is done on other DOE clean coal projects. (Commercial projects are typically 50–80 percent financed. FutureGen would likely only be 10–20 percent financed).
- The Alliance will use potential revenue from the operation of the facility as a pledge to the lending institution for financing, which is common commercial and DOE practice.

DOE has been aware that financing would be used on the project for years, and did not object to such an approach when it signed the Cooperative Agreement for the project. The Alliance reiterated to DOE that the project would probably require such a financing structure in the summer of 2007, when the Alliance and DOE engaged in discussions to address new DOE concerns with the Cooperative Agreement. So, the apparent surprise on DOE’s part that the Alliance would seek third-party financing is unwarranted.

The Alliance’s proposed financing approach, which includes borrowing funds to meet a portion of the Alliance’s cost-sharing commitment to the project, is fully consistent with applicable law and the existing Cooperative Agreement between the DOE and the FutureGen Industrial Alliance, and therefore, not, as DOE alleges, “a substantial departure from DOE practice.”

Nothing in the law prohibits DOE award recipients with cost-sharing obligations from utilizing third party, non-recourse financing to facilitate fulfillment of their cost-share obligation. Similarly, nothing in the existing Cooperative Agreement prohibits the Alliance from utilizing such financing. Indeed, the governing regulations that establish rights to project property and that are specifically incorporated into the Cooperative Agreement (10 C.F.R. §§ 600.130–600.137), and the current Cooperative Agreement itself, both contemplate this possibility. Article 25 of the Cooperative Agreement provides that the Alliance may not “encumber the property (acquired during the project) without DOE’s prior written consent,” and thus contemplates that the Alliance may encumber the property with DOE approval. The regulations are substantively similar. Thus, rather than prohibit third party financing security interests, the governing regulations and Cooperative Agreement instead require that the Alliance, the recipient, obtain DOE consent to the creation of any financing encumbrances.

Many DOE-supported projects rely on similar financing approaches. There is ample precedent where DOE has accepted projects that have proposed to finance the industry portion of a cost-share project by means of a project finance structure in which recourse, in the event of a default on a loan, is limited to the project itself and associated assets. Indeed, DOE’s willingness to accept such financing structures is embedded in the recently inaugurated loan guarantee program authorized by title XVII of the Energy Policy Act of 2005. Further, DOE has a pending solicitation posted on its website for the Clean Coal Power Initiative that allows financing.

Moreover, overall, the Alliance’s proposed approach would not, as DOE asserts, “significantly increase taxpayer risk.” The Alliance recognizes that its financing pro-

posal results in some manageable risk to the Federal Government.¹ However, the Alliance's proposal on financing was and is only one element of a larger package of compromises offered to DOE in good faith in the summer of 2007 to help ensure that project is successfully completed and that the intended benefits of the project accrue to DOE and the public. On balance, we believe that the benefits of this overall package far outweigh any incremental risk to DOE associated with the package's financing proposal component.

It is important to reinforce that an existing legally binding agreement is in force and these discussions are an attempt by the Alliance to address DOE concerns earlier than both parties previously planned.

It is significant to note that if DOE walks away from the project now, as it is apparently willing to do, a significant portion of DOE's contribution to date will not have achieved the desired taxpayer return. DOE not only risks losing its financial investment, but also risks losing its investment of time, given the years already spent moving the project forward to this point.

The way to ensure the highest return on the investment that the Federal Government already has made in the project is to successfully demonstrate, with international participation, an advanced power generation technology that is not being planned elsewhere coupled with the capture and long term storage of CO₂. The Alliance and its members are in the same situation. For that reason, there is every incentive on the part of the Alliance and its members that the project succeeds.

FutureGen at Mattoon is not an ordinary project for our country. The FutureGen Alliance represents a totally unique attempt by industry to aggregate financial and technical resources, to do so on an international basis, and to undertake a research, development, and demonstration project with no promised return on investment to its members other than addressing a global problem through a technological solution. By the Government's own admission, the FutureGen project represents our Nation's most significant attempt to support technology development to comprehensively address global climate change. It should be given a fair chance to succeed.

Given that the Nation appears to be on cusp of a massive effort to regulate CO₂ emissions that will cost electricity consumers across the Nation hundreds of billions of dollars over the coming decades, it seems reasonable to invest several billion dollars on the front-end, in this project and others, to prove out the technology.

Just as important as the \$1.8 billion cost is what the non-profit Alliance has committed to in the Cooperative Agreement to mitigate the Government's financial exposure and additional offers the Alliance has made to DOE. Among the provisions in the Cooperative Agreement are:

- Alliance agreed to provide 26 percent industry cost-share. This is up from the original 20 percent requested by DOE on the day the President first launched the initiative.
- The Alliance and DOE agreed to negotiate an adjustable cap on the DOE contribution, where the level of the cap would be adjusted up or down based on inflation/escalation indices (a common practice in industry). This adjustment would be negotiated after the current project phase.
- The Alliance and DOE agreed to share revenues pro-rata instead of the typical cooperative agreement whereby the private partner keeps all of the revenues. The effect of this was to have 74 percent of the estimated \$300 million in revenues be allocated to reduce DOE's cost share.
- The Alliance and DOE agreed to share proceeds from the sale of the facility on a pro-rata basis instead of all being allocated to the industry partner as is typical for industry/DOE co-funded projects. This has the net effect of creating the potential for a material repayment of DOE's cost share. To the best of our knowledge, this is unprecedented in the history of Clean Coal Technology (CCT) or Clean Coal Power Initiative (CCPI) projects.
- Contributing Alliance members under the 501(c)(3) structure would not receive any repayment of their contributions from project revenues or a facility sale. Such funds must be directed back to research and development.

At the end of the current project phase (i.e., Budget Period 1), an updated cost estimate will be prepared that takes into consideration site-specific design considerations and makes adjustments (up or down) for changes in marketplace escalation.

¹So long as the Alliance neither withdraws from the project nor defaults on its debt repayment obligations, DOE will not incur any additional risk or obligation as a consequence of the Alliance's financing proposal. Even if the Alliance were to withdraw from the project or default on its debt obligations, DOE's risk should be limited, and DOE should have the ability to prevent a situation where it would be at risk of "having to surrender the facility to the Alliance's outside lenders," as stated in its letter.

The Alliance has every motivation to control costs. The FutureGen Alliance is not simply a contractor billing DOE to perform a service. The Alliance is sharing in the costs pro-rata and is motivated to see technology developed at the lowest possible cost. FutureGen at Mattoon's unique financial structure mitigates taxpayer exposure. After the project's mission is fulfilled, if the plant is sold, DOE will be repaid in part or in full for its investment from sale proceeds. Industry financial contributors will never receive a single dollar of financial return. This represents an unprecedented level of commitment. Further, the Alliance members are providing their expertise in developing and managing large power plant projects with the discipline. The Alliance is willing to make this commitment because this investment is squarely in the interest of both the Nation and the world.

HISTORY OF DOE INTERACTIONS

The FutureGen program was initially launched in February 2003 by President Bush. At this time, industry was challenged to organize a consortium of companies to participate in the project. A consortium was judged to be a better approach than DOE's historical approach of co-funding single company projects, as there was a clear objective to have broad industry engagement. DOE representatives clearly conveyed that the business arrangement would be patterned after previous CCT cooperative agreements. Also, because of the project scale and the desire to make the effort a global one to accelerate the technology use, it was indicated that the more restrictive CCT requirements would be removed. Specifically, the DOE represented the following anticipated terms:

- twenty percent non-Federal cost-sharing;
- no repayment requirement from the industry partner;
- ability to vest ownership of the plant with the industry partner;
- traditional CCT program data protections for the industry partner;
- potential for program income (electricity, CO₂, and byproduct sales) to be shared among project participants proportional to their cost sharing during the 4-year project operating program;
- all of the post-project revenues to the industry partner, including any proceeds from a sale of the facility after the project; and
- an advance appropriation of \$300 million toward the project through a programmatic transfer of funds from several cancelled CCT projects. (Typically, DOE appropriates all of the funds on a CCT project in advance. However, in FutureGen's case, DOE determined full advanced appropriation was not possible).

It was with this framework in mind that industry formed the Alliance, made representations to Congress and around the world, and grew its membership. Further, in the interest of ensuring that neither the DOE nor industry were inappropriately considered to be engaging in "corporate welfare," the Alliance was formed as a non-profit 501(c)(3) entity. The decision to incorporate as a 501(c)(3) entity is unprecedented for an industrial partner in a DOE clean coal project cooperative agreement, and has the following implications for the Alliance members and DOE:

- unlike DOE, the industry contributors can never share in a single dollar of program income or proceeds from the plant sale if that ever occurs;
- any program income or proceeds from the plant sale realized by the Alliance must be reinvested in public benefit R&D; and
- unlike DOE, the industry contributors do not gain any stake in intellectual property rights.

At the time of the project launch the DOE leadership team included:

- Secretary Spencer Abraham,
- Deputy Secretary Kyle McSlarrow,
- Under Secretary Robert Card, and
- Assistant Secretary for Fossil Energy Michael Smith.

The public-private partnership was cemented through an initial Limited Scope Cooperative Agreement signed in 2005. This limited scope agreement supported preparation of a conceptual design report and initiation of the site selection process.

By the time of the signing of the initial Limited Scope Cooperative Agreement, Secretary Abraham, Kyle McSlarrow, Robert Card, and Michael Smith had left the Department and were replaced by:

- Secretary Samuel Bodman,
- Deputy Secretary Clay Sell,
- Under Secretary David Garman, and
- Acting Assistant Secretary for Fossil Energy Mark Maddox.

For the Cooperative Agreement, the National Energy Technology Laboratory (NETL) under the Office of Fossil Energy serves as the official contracting entity

for DOE on FutureGen. The Alliance is accountable to NETL on all technical and contractual issues. The official contracting officer is the individual with the authority to modify the Alliance's work scope, adjust budgets, or make binding determinations on which activities under the Cooperative Agreement can and cannot proceed. The working relationship with the staff at NETL has been very positive. This included DOE management regularly being invited to Alliance board of directors meetings. This is also unprecedented for a DOE clean coal project. From our vantage point, it appears that DOE concerns about the project have been raised by its political leadership. It is also been the case that the DOE political leadership has often provided advice, which was valuable and consistent with contractual obligations, and has been followed.

During the conduct of the Limited Scope Cooperative Agreement, Mark Maddox left the Department and was replaced by:

—Assistant Secretary for Fossil Energy Jeffrey Jarrett.

Following completion of the activities covered by the Limited Scope Cooperative Agreement, in December 2006, the Alliance submitted a conceptual design report and cost estimate to DOE. This material served as the basis for negotiating a \$1.8 billion Full Scope Cooperative Agreement.

The Full Scope Cooperative Agreement acknowledged the higher project costs similar to those of every other major energy infrastructure project. In its original estimates DOE had expressed costs as constant fiscal year 2004 dollars versus out-year, as-spent dollars. Both the Alliance and members of DOE's leadership team were advised of and were well aware of their increased contributions resulting from global escalation. The project did not change in scope from its inception. DOE agreed to proceed and a Full Scope Cooperative Agreement was signed in March 2007, with a gross cost of \$1.8 billion, and a net cost of \$1.5 billion (the net cost reflects credit for electricity sales used to offset part of the gross project cost).

The Full Scope Cooperative Agreement runs through 2017, with most of the expenditures concentrated in the next 5 years. Upon DOE's approval of the agreement, Alliance members irrevocably committed \$10 million to the current project phase and collectively budgeted nearly \$390 million of private money for future project phases. The Alliance's responsibilities in the first phase (termed Budget Period 1) of the Cooperative Agreement include selection of the final site, additional design, preparation of a site-specific cost estimate, and procurement of long-lead items.

Throughout 2007, the Alliance and the four finalist sites continued to spend millions of dollars to advance the activities. The DOE continued its efforts to bring in government partners including China, India, Japan, South Korea and Australia. Project costs were a part of the negotiation with these countries. A few have already committed funding to the project. The Alliance hired staff, leased office space and retained key global contractors.

At some point after the Full Scope Cooperative Agreement was signed in March 2007, something in the Department had clearly changed or confusion had evidently developed, as Deputy Secretary Sell raised very surprising concerns about out-of-control costs, scope growth, that DOE was liable for 100 percent of the cost growth, and that the Alliance was "mismanaging the project." The Alliance did not agree with these observations and the Alliance promptly suggested a meeting to discuss the new concerns. A presentation from that meeting is included in this testimony as an attachment. In August 2007, DOE representatives routinely attended an Alliance Board of Directors meeting where they acknowledged to the Alliance Board that the cost growth was now understood to be due to market escalation, recognized that the project was managed by the Alliance effectively, that the Alliance has been responsive to the DOE, and that cost increases were not due to scope growth.

To this day, it is unclear why after a multi-month review process and negotiation for the Full Scope Cooperative Agreement, concerns could have arisen within DOE as early as 1 month after the signing of a \$1.8 billion agreement.

It should be pointed out that both the Alliance and DOE were concerned about marketplace escalation. It was the Alliance's view that the appropriate way to address the issue was to follow the plan in the Cooperative Agreement and complete the current project phase, which included a site-specific engineering cost estimate. At that time all parties could discuss how DOE's financial exposure could be mitigated further. In the Alliance's view it was premature to renegotiate the original agreement when neither party had better engineering cost information or better information about escalation than when the original negotiations and agreement occurred.

Further, to maintain a large capital project on track, it is important to establish and follow a well designed plan with predefined project phases. Had DOE and the Alliance followed the plan as agreed to in March 2007, we would be sitting here today with a final site, Mattoon, a site-specific construction design, and a site-spe-

cific cost estimate. There would have been sufficient time during this administration to adjust the Cooperative Agreement based on this new information. Instead, the effort is nearly stalled and valuable time is being lost.

During the late-Spring/Summer of 2007, David Garman and Jeffrey Jarrett left the Department and were replaced by:

- Under Secretary Clarence “Bud” Albright, and
- Acting Assistant Secretary for Fossil Energy Thomas Shope.

In late-September 2007, newly appointed Under Secretary Albright communicated, as general concepts, a set of Cooperative Agreement modifications. This introduced a new series of requests. Most were related to shifting more risk and cost from DOE to the Alliance. Early conversations were cordial and productive. From a business and capital project management perspective it did not make sense to the Alliance to modify the agreement in mid-stream without further project data such as site and cost estimate details; however, there was a recognition and willingness of the Alliance to modify the agreement at the appropriate time. Further, there was Alliance willingness, in principle, to accept DOE’s request that after the DOE had expended a mutually agreeable sum, any future cost increases above that sum would be shared 50/50 versus the previously agreed to 26/74. During meetings with DOE, the general concepts were developed in an initial term sheet of modifications for further discussion.

Thomas Shope left the Department during this time period. The Assistant Secretary position remains vacant to this day.

In mid-October 2007, a stumbling block was reached when DOE raised for the first time an absolute demand to limit the Alliance’s ability to use commercial financing for a portion of the project. Commercial financing is routinely used on DOE clean coal projects and is expressly contemplated in the applicable regulations. Financing is an important tool to manage project cash flow and manage unforeseen risks. Normal private sector energy projects are typically financed 50–80 percent of total project cost. In the case of FutureGen, a lesser amount of 10–20 percent is manageable. Financing had been discussed with DOE as early as 2003 and the Alliance had an obligation to provide a financing plan to DOE prior to the start of the next project phase. Thus, for financing to be eliminated or highly restricted by DOE came as another surprise.

Still, the Alliance, based principally on a series of strong positive signals to come from DOE and the administration, operated under the view that the DOE concerns could ultimately be resolved no later than the start of the next project phase and that selection of a final site and preparation of a site-specific cost estimate would help in the resolution of those concerns. The Alliance made it very clear that its members would agree to contribute their pro-rata financial commitments of \$400 million in cash, subject to the availability of matching DOE cost-share. Thus, there should be no concern over the Alliance walking away after construction begins. Moreover, the Alliance would have already spent tens of millions of private sector money before construction so there would be the added incentive to see the project to completion.

In parallel to these discussions with DOE, and DOE’s position that financing should be highly restricted, the following very positive events occurred over the fall of 2007 leading up the final site announcement:

- Secretary of State Condoleezza Rice made positive mention of FutureGen in a speech before the United Nations.
- President Bush made positive mention of FutureGen in a meeting of Major Economies on Energy Security and Climate Change.
- DOE issued an approximately 2,000-page Final Environmental Impact Statement (EIS) and published a Notice of Availability in the Federal Register on November 16. The EIS described the relationship between DOE and the Alliance, the project costs and cost-share, and DOE’s preferred alternative to provide financial assistance to the FutureGen project.
- DOE issued a press release indicating that completion of the EIS would enable a site announcement by year-end.
- DOE was communicating to Members of Congress that a site would be chosen by year-end.
- The EIS Notice in the Federal Register started an important clock on a 30-day “wait period” before the end of which DOE could not issue a final Record of Decision (ROD). The Alliance and DOE had discussed, multiple times, in the preceding 6 months, that DOE would issue the ROD when the 30-day wait period expired (December 16, was the expiration date) and the Alliance would announce the site no later than December. DOE provided an advance copy of the final draft ROD for Alliance review. This interaction included a discussion that DOE was on-track in its preparation of the ROD so that it could be issued on

December 17, albeit an aggressive schedule. DOE staff were working hard, and it was an excellent team effort.

On the basis of these positive actions by DOE and the administration, the Alliance made the final site decision the first week in December. The Alliance was obligated to make this site selection under the terms of the still active Full Scope Cooperative Agreement. Given the involvement of 13 companies, communication planners, project staff, and others, within a week approximately 50 individuals knew the site was Mattoon. While still confidential, the Alliance recognized the wheels were now in motion and the site would be known either through an organized message or through an unintended leak. Obviously an organized, versus unintended, release was the preferred approach.

On December 10, DOE's Deputy Assistant Secretary for Oil and Natural Gas Programs, who was also Acting Principal Deputy Assistant Secretary for Fossil Energy, called the Alliance CEO to indicate a letter would be coming to the Alliance. A letter followed, from Mr. Slutz, indicating a delay in DOE's issuance of the ROD and indicating it was "inadvisable" for the Alliance to schedule an announcement of the selected site while offering no compelling reason for a delay. At that time, (with all due respect to Mr. Slutz and his position), the Alliance cannot recall having heard from him before, nor was he known to be a central player in the Department's project decisionmaking process. Consequently, the Alliance weighed very strongly whether or not to take DOE's advice against other compelling factors for proceeding.

Given that the wheels on the site announcement were already in motion, the site decision was already made and becoming more difficult to keep confidential with so many individuals knowing the final site, and project delays costing as much as \$10 million per month, the Alliance felt the reasons for proceeding outweighed the reasons for delay. The Alliance had already reviewed an advance copy of the ROD, which reaffirmed the EIS findings and concluded all four candidate sites were acceptable. It was assumed the ROD would indeed be released on time or soon thereafter without issue, as it was effectively complete. There was also a strong feeling that it was inappropriate for the Alliance to string along the States of Texas and Illinois with another delay. The States had been spending substantial amounts of their sparse State resources and had originally been promised a site announcement in September, then October, and then November driven by slippage in the EIS release. The efforts of both States were commendable and they earned our admiration for always having been prompt when it came to meeting their deadlines to the Alliance.

While DOE had suggested a possible restructuring to several of the Alliance member companies, this information was only heard by the Alliance management through third parties with sketchy details. Since the project's outset, it has not been uncommon to hear rumors or misinformation third hand that never materialized as correct. No official representative of the Alliance was specifically told of the restructuring plans by DOE prior to the day of the DOE announcement.

DOE'S PROPOSED RESTRUCTURING

As currently configured, DOE's proposed restructuring would effectively result in the termination of FutureGen at Mattoon. The Alliance Board carefully evaluated the proposed restructuring and has concluded that neither a 13-member consortium nor a smaller Alliance consortium could successfully conduct FutureGen at Mattoon under the newly proposed model. The reasons for this are technical, financial, and business structure related. The Alliance also has serious concerns about the adequacy of funding under the proposed restructuring, and whether any project conducted by any party could meet the stated DOE goals in a timely manner. The Alliance view remains that it is in the national interest to complement FutureGen at Mattoon with additional, adequately funded projects in a variety of engineered applications and a variety of geologic formations, but that complementary projects must not come at the expense or delay of the number one priority, FutureGen at Mattoon.

Further, DOE has cited a changing marketplace and cost-related issues as the basis for their decision. Cost issues have been addressed above. With respect to the changing marketplace, DOE argues there are now many commercially announced IGCC projects and carbon capture and sequestration could be incrementally added to them. While there are numerous proposed IGCC projects, it is widely recognized within industry that few of these projects will come to fruition. In fact, since DOE signed the Cooperative Agreement in March 2007, the number of commercial IGCC projects has declined not increased. Those few projects which are proceeding face both financial and regulatory challenges. Thus, the market is not as mature or stable as DOE has implied.

DOE cites two conventional IGCCs without CCS as being permitted. We applaud the leadership of Duke, AEP, and Southern Company who are farthest along in the development of commercial IGCC projects without capture. However, one must look at the actions of these companies as early market deployments that must overcome some substantial hurdles. In the case of Duke's IGCC, nearly \$400 million in tax incentives and a 18 percent rate increase were required in order for this plant to represent a sound commercial investment. Further, last week Duke reported the need for an additional \$365 million from the ratepayers for its 630-MW IGCC. This again is for a plant without CCS. In the case of AEP's IGCC, it has had difficulty gaining approval for the rate increases in both Ohio and Virginia necessary for it to be a sound commercial venture. Thus, one cannot conclude there is a mature, sustainable market for conventional IGCC plants without CCS.

Adding CCS to an IGCC further complicates the siting, design, construction, and operation of the plant. It also complicates the business structure associated with building such a plant. It is a common misconception that adding CCS to a conventional IGCC is simple, particularly at high rates of CO₂ capture. It is relatively straightforward to capture at rates of 20 percent. It becomes more costly at rates approaching 60 percent. As one exceeds 60 percent and approaches 90 percent capture, which is DOE's stated goal, it becomes technologically very challenging as major system components must be modified or changed out completely. It also is far more expensive. Given these complications and the need for bold technological advances, the first such plant is best left to a public-private partnership that is not bound by the constraints of a normal profit-making venture. That partnership involves building FutureGen at Mattoon with 90 percent CO₂ capture.

Currently, DOE's proposed restructuring leaves many unanswered issues that are of concern. Some of the specific concerns about DOE's proposed restructuring include:

—*DOE's Schedule Under the Restructuring Proposal is Unrealistic.*—DOE has an important obligation to the taxpayer to follow comprehensive contracting processes, conduct technology reviews, and prepare an environmental impact statement on any new project. The schedule (i.e., a proposed on-line date of 2015) in the Request for Information (RFI) is not realistic for a project that meets 100 percent of the stated goals. Many potential industrial partners are unfamiliar with DOE's required practices, and it is important that the DOE inform them of a reasonable schedule so that they can properly conduct the project and deal with their third-party investors. Overly optimistic schedules are a disservice to Congress, industry, and the public.

Based on our experience, the following would be a fast-track schedule for DOE to identify an alternative, fully integrated project that meets all of the existing performance goals for the FutureGen program:

- 2009+: project selection and cooperative agreement negotiation.
- 2012: completion of preliminary design, environmental impact assessment and record of decision.
- 2013: completion of detailed design and procurement of major technology components.
- 2017: completion of construction.
- 2018: initial operation.
- 2022: completion of test period.

—*DOE's Restructured Approach has Problematic Business Parameters.*—DOE's proposal implies that 90 percent capture simply involves the addition of new technology to an existing IGCC. It does not. The complex integration of CCS into a commercial IGCC plant will entail significant modifications to many other systems, including commercial systems inside the base plant. It would also largely require a restart of design work done to date on the base commercial plant. Thus, the Government, its procurement rules, and its oversight practices could easily extend into the commercial, for-profit power plant. Further, applying FutureGen funds to a project with anything appreciably less than capturing 90 percent of the total CO₂ emissions from the entire plant would fall short of what is needed to rapidly develop near-zero emission coal plants.

—*DOE's Restructured Approach Does Not Address the Increased Marginal Cost of Electricity Due to Adding CCS to a Plant.*—The modified plant that DOE proposes that industry build will cost substantially more to operate than a traditional plant. DOE's RFI is largely silent on operating costs. Adding CCS to an IGCC plant is expected to increase the cost of electricity by as much as 50 percent and the marginal production cost by as much as 20 percent. Because power plants dispatch electricity to the grid based on their marginal operating cost, the approach DOE proposes could result in a plant that is too expensive for industry to operate.

—*DOE Appropriately Retained the 90 Percent Capture Goal in its RFI and Must do so in any Awarded Projects.*—However, DOE has recently made public statements that this goal may be relaxed. The FutureGen program has identified 90 percent CO₂ capture as an important requirement to advance CCS technology. This level of CO₂ capture has significant impact on the design of many critical components of the facility, such as the combustion turbine, gas clean-up system, and syngas clean-up system. It would be a serious mistake if this target level is relaxed. Ninety percent is a technical goal designed to ensure a sustainable future for coal in a carbon-constrained world. Today's commercial projects cannot technically or economically achieve this goal and DOE's program should focus on bold technological advances, not incremental change.

—*Plant Revenue Must go to the Industrial Partner.*—In a commercial project, it is expected that all of revenue would need to go to the industry partner. For FutureGen at Mattoon, DOE shared in the project revenues substantially offsetting Federal investment. For projects conducted under DOE's new approach, the industrial partner would insist that plant revenues go to the industrial partner so that the private sector participants can generate a commercial financial return.

In its 2004 report "FutureGen Integrated Hydrogen and Electric Power Production and Carbon Sequestration Research Initiative," DOE acknowledged the necessity for the type and level of risk sharing associated with FutureGen at Mattoon if technology is to advance at the required pace. In its report, DOE said:

"FutureGen's integration of concepts and components is key to providing technical and operational viability to the generally conservative, risk-adverse coal and utility industries. Integration issues such as the dynamics between upstream and downstream subsystems (e.g., between interdependent subsystems such as the coal conversion and power and hydrogen production systems and carbon separation and sequestration systems) can only be addressed by a large-scale integrated facility operation. Unless the production of hydrogen and electricity from coal integrated with sequestering carbon dioxide can be shown to be feasible and cost competitive, the coal industry will not make the investments necessary to fully realize the potential energy security and economic benefits of this plentiful domestic energy resource."

Technology advancements and market changes in the last 5 years have not changed this need for a full scale validation envisioned in DOE's report and FutureGen at Mattoon.

There is no program in the world that can move near-zero emission power and CCS faster or further than FutureGen at Mattoon. The FutureGen Alliance is non-profit, includes unprecedented international involvement and information sharing, and has a site that is technically and legally ready to go. Alternatives will cost the country 5 years or more of delay, cost the taxpayers more, and/or deliver less in terms of results.

As Congress and the administration debate the appropriate structure for the FutureGen program, the Alliance urges that all of the factors raised in this testimony be taken into account. FutureGen at Mattoon should be maintained as a global flagship program that is the Nation's top priority for advancing near-zero emission coal technology, and complementary projects should be added to the program as the budget allows.

FutureGen *Project Status*

Presentation to Clay Sell

Greg Walker, Alliance Chairman (SVP Foundation Coal)
Chris Hobson, Alliance Vice-Chairman (SVP Southern Company)
Paul Thompson, Alliance Director (SVP E.ON - U.S.)
Steve Winberg Alliance Director (General Mgr CONSOL Energy)
Mike Mudd, Alliance CEO

18 April 2007

Meeting Objectives

- Answer Any DOE Questions
- Alliance Perspective on the Importance of FutureGen
 - *Right Project at the Right Time*
- Alliance Formation, Make-up and Operations
 - *Right Structure and Leadership*
- Basis upon which Industry Committed
 - *Right Deal*
- Address Project Cost Inflation/Escalation
 - *Right Schedule and Cost Control*
 - *Cost Estimate*
 - *Realities of Inflation*
- Chart Path Forward

FutureGen **Right Project at the Right Time**

- Alliance formed in direct response to President's Initiative
 - Industry is contributing nearly \$400M with no expectation of financial return
- Alliance members agree FutureGen is central to a technology-based approach to climate change
 - DOE's CCTP and the IPCC suggest advanced technology can reduce the cost of addressing climate change by trillions of dollars
 - FutureGen is central to realizing these benefits
 - Members willing to support pursuit of greater R&D Budget for all DOE
- FutureGen is unique
 - No other fully integrated power plant combining gasification, carbon capture, and sequestration in a deep saline geologic formation
 - FutureGen provides a clear mechanism to assess the cost, performance, and public acceptance of integrated near-zero emissions power plant, which is an essential precursor to commercial deployment

FutureGen **Right Project at the Right Time**

- Factors influencing current and prospective future members – why FutureGen is important to members
 - High-level Administration support
 - Aggressive, but realistic, timetable
 - Leading global project to validate models for measuring, monitoring and verifying sequestration results
 - Leading global project in terms of engineering
 - Outside expert/academic input and DOE oversight adds to global credibility
 - Foreign participation, which is crucial to global technology acceptance
 - Operated with commercial business discipline
 - Will provide clarity to commercialization uncertainties: permitting, insuring, bonding, operation, monitoring, complex surface and subsurface rights, etc...
 - Addresses much more R&D than CCS – oxygen separation, multiple coal gasifier, H₂ production, gas clean-up advancements, hydrogen turbine advancements
 - Opportunity to create a self-sustaining R&D facility

FutureGen **Right Project at the Right Time**

- Unprecedented global visibility
 - FutureGen is in the press nearly every single day
 - Foreign governments and companies see FutureGen as one of the most, if not the most, important sequestration projects on the planet
 - FutureGen is a catalyst for new projects in other countries, which is exactly what is needed to build global acceptance of the technology and position the U.S. as a leader on climate change solutions
- FutureGen is on an aggressive timeline that is aligned with U.S. and global needs
 - Pressure to address climate change and the long-lead times for equipment procurement and construction demand an aggressive schedule

FutureGen **Right Structure and Leadership**

- Industry
 - Established Alliance as 501(3)c non-profit entity
 - Twelve leading companies with operations on six continents
 - Investing nearly \$400M* in the project plus recycling 100 percent of our share of electricity revenue back into the project to offset costs
 - Individual companies forgo right to IP, revenues, or assets
 - IP will go to the vendor community and public, as appropriate to facilitate commercialization
 - Alliance brings industrial business discipline, and power plant expertise to the project



>40 percent of U.S. coal production

>20 percent of U.S. coal-fueled electricity production

*\$379M in actual dollars through 2017

FutureGen

Right Structure and Leadership

- Alliance views DOE's role as essential
- It's clear FE is committed and has dedicated their "A-team" to the project
- DOE-FE
 - Providing appropriate oversight
 - Ensuring alignment with national technology goals
 - Providing, through in-house and sponsored research, the technical foundations for FutureGen
 - Managing international government participation in FutureGen
 - Conducting NEPA process

FutureGen

Right Deal

- Alliance came to the table with the following understanding:
 - DOE wanted a consortium of companies not a single company
 - 74% government cost-share (Reference: DOE, OMB, CEQ Alliance meeting 2004)
 - Administration to maintain support of FutureGen and other coal programs (Reference: Bolten letter and FY05 request levels)
 - \$950M cost was in FY04 dollars and subject to adjustment for inflation (Reference: Secretary Abrahams Q&As on FY04 budget request)
 - Alliance and DOE to share in adjustments for inflation
 - Industry contributors to the Alliance would get zero financial return and no IP rights (unlike CCPI demonstration projects)
- Alliance built a global enterprise based on this deal

FutureGen**Right Schedule and Cost Control**

- The Alliance has met every major milestone since signing the initial cooperative agreement with DOE
- Alliance is using the same project management techniques that have successfully delivered countless industrial projects, on-schedule and in-budget
- Incentive for Alliance to control costs—we share in growth
- There has been zero cost growth due to scope growth relative to DOE Report to Congress
 - same plant size
 - same CO₂ capture target
 - same SO_x, NO_x, and Hg targets
 - same commitment to global involvement
 - same plant on-line year

FutureGen**Right Schedule and Cost Control**

- FY08 Administration request of \$108M was on-target
 - Funds cover continued engineering design and long-lead time procurements
- Scheduling long-lead time procurements
 - Construction begins in the Spring of 2009 with all major equipment deliveries completed no later 2011.
 - Current lead times on selected major equipment components are 24 to 36 months between the time of the order and the time of delivery.
 - Thus, expenditures for long-lead time equipment orders are substantial in FY08 and FY09
- FY09 to FY11 are peak Federal funding years at \$233M/yr.
 - Available foreign contributions would reduce this amount

FutureGen

Right Schedule and Cost Control

- The current estimated net cost of the project in nominal, as-spent dollars is \$1.484B between FY04 and FY17.
 - \$1.484B is the net project cost including both operating costs and revenues
 - Assumed 5.2% inflation per year through 2017
- The Alliance will fund \$379M of the total estimated cost.
- The Federal government, consistent with the terms of the deal, would be responsible for \$1.105B.
 - ~\$ 80M of this is expected from foreign governments
 - \$ 99M has been appropriated between FY04 and FY07
 - ~\$926M in future appropriations is required
 - ~\$233M is the estimated peak annual Federal funding requirement

FutureGen

Cost Estimate Summary

	DOE 2004 Estimate	Alliance 2006 Independent Estimate	
Project Cost (1Q 2004\$)	\$950M	\$954M	✓ Alliance Estimate Confirms DOE Estimate
Scope Growth (1Q 2004\$)	--	Zero	✓ Project remains focused on original scope and mission as established by DOE
Inflation Multiplier (converts cost to actual outlays, in future-year dollars, over the life of project 2005 to 2017)	--	1.56	✓ Based on public Government and Industry Indexes
Project Cost (future-year dollars thru 2017)		\$1,484M*	✓ Equivalent to DOE's original estimate. Inflation does not exceed inflation for other industry projects. No scope growth.
DOE/FG Cost Share %	74/26	74/26	
DOE/FG Cost Share \$M	\$700/\$250	\$1,105*/\$379*	

*DOE's NEPA costs are 100% DOE funded.

FutureGen **Inflation**

- Inflation reflects the normal up-and-down fluctuations in materials, labor, and services over time.
- Controlled by market forces (supply/demand), not the Alliance, DOE, nor the Congress
- Similar inflation in similar projects seen by all Alliance members globally
- The Bureau of Labor and Standards, as well as other organizations track inflation and report it publicly

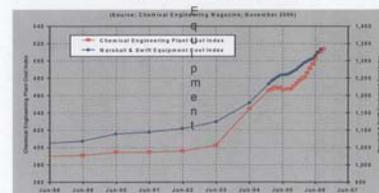
FutureGen **Inflation**

- Since DOE completed its original cost estimate in 1Q FY04, the Bureau of Labor and standards reports:
 - well drilling up ~250%
 - heavy construction up ~30%
 - general A/E services more closely tracked general inflation

Carbon Steel Price Indices



Equipment Cost and Process Plant Costs



FutureGen Right Industry Commitment

- Industry has responded to and remains committed to the President's Initiative under the terms of the deal
- Industry is delivering with distinction
- Industry shares with DOE the burden of making the project successful in spite of challenges beyond our control
- We trust that DOE shares this vision and plans to provide the political, technical, and financial support required



Senator DORGAN. Mr. Thompson, thank you very much for your testimony and for being here. Let me ask you the question that Senator Durbin was asking the Secretary on the issue of cost. And the reason I ask it first is because when the Secretary called me and indicated that he was “pulling the plug” on FutureGen, the first point he made was the growth in cost.

Give me your estimate of why that has happened. What has caused the growth in the cost of FutureGen?

Mr. THOMPSON. What has occurred is in fact escalation of component materials, component cost, labor, so inflation of the materials and the activity that will go into building the plant. The constant dollar estimate of \$950 million that scope is essentially what we are still looking at. So today's estimate, really March 2007 when we signed that cooperative agreement, it did have in as built dollars, so the real dollars cash that would be played out over the next 9 to 11 years that was going to be higher, \$1.8 billion. And that difference was inflation, as discussed the 5.2 percent inflation factor is the difference.

Senator DORGAN. Let me understand that. I didn't quite understand the point of the March 2007 signing. At that point when an agreement was signed between the Alliance and the Department of Energy what was the cost estimate then?

Mr. THOMPSON. It was that \$1.8 billion. So all of that work had been established and the work with the Department of Energy. There was full understanding of what that cost estimate was when we move forward with the full agreement.

Senator DORGAN. So you're saying the escalation, there wasn't an escalation or a change in the estimate between the time when the Department of Energy signed the agreement and in January/February

ruary timeframe when they announced they were pulling the plug on FutureGen.

Mr. THOMPSON. The data points that we the Alliance, are working with what continues to be this 5.2 percent inflation. We have not changed our estimates. The project activity that we are under obligation as the Alliance to work with the Department of Energy on does have us working on refined estimates that may or may not change. It could go down. It could go up.

Our estimation is still the same as it was in March 2007.

Senator DORGAN. I see. You know there are some who have notwithstanding the reasons for the cancellation or the announcement to cancel FutureGen, there are some who have felt that the so called Big Bang Theory of doing one big project called FutureGen would have been better accomplished if you had done a number of smaller projects similar to what the administration had announced. You have indicated that first of all, it is a timing issue. I indicated earlier there's an urgency here.

But second you indicated that there is no set of smaller projects that will accomplish and give us the knowledge base that your project will. Expand on that if you will because I want to understand that.

Mr. THOMPSON. Yes, sir. First of all, for retrofit applications there are a number of other technology developments that are underway which we, as the Alliance, all members of the industry greatly applaud. And there needs to be substantially more money put into that in anticipation of potential climate change legislation. So that work, we certainly don't think should be stopped. It has to be expanded also.

What we really look at as the Alliance, the members who are very keen to get the big bang, as you call it, project going is that it does just that. It takes all of our known technological pieces that science, chemistry and so on can piece together. But it has to be put all together into one operating plant.

As an electricity provider I can't store my product. I have to make sure that everything from the time I start putting fuel into the system to when I deliver electricity out, everything has to work. It's integrated.

So trying to get cost effective, long term, near zero emission projects together, it does take putting it all together. And that's what this project does. It doesn't supplant all of the other efforts that are ongoing.

But for us to see how fast that we can get cost effective power using coal in this technology choice that's out there, that's why this big bang is important. All other smaller activities don't get us to the moon fast enough.

Senator DORGAN. Senator Domenici?

Senator DOMENICI. Thank you very much. Mr. Thompson, thank you very much for coming today.

Mr. THOMPSON. You're welcome.

Senator DOMENICI. I assume you've been under a lot of pressure. You look alright though.

Mr. THOMPSON. Well, thank you.

Senator DOMENICI. You must be pretty tough. Yesterday as I understand it the DOE issued a draft funding opportunity announce-

ment for clean coal plants with carbon capture and storage under the restructured FutureGen. Will you or your members submit a proposal to build a plant in Mattoon under the solicitation based on the work that has been done at Mattoon? It seems like this would give you a head start over other applicants.

Mr. THOMPSON. As the FutureGen Alliance, no we will not be submitting under this revised approach. The approach does require that there's effectively a front end power plant that is commercially built that the activity would then add on to for carbon capture and sequestration. So this Alliance will not be focusing on building a commercial power plant that is a prerequisite for following through. Others may, but we will not be.

Senator DOMENICI. You say others will or may?

Mr. THOMPSON. Other companies that are in the industry certainly may want to look at that. And if they do that that is their choice and if it advances our understanding of technology that too should be applauded. But it's a complement, not a replacement of what we're trying to do.

Senator DOMENICI. As you might know after much delay we did get a rather substantial allocation of loan guarantee money for both nuclear powerplants and coal. Coal got about \$8 billion. Excuse me. Does that mean anything to you and your future?

Mr. THOMPSON. From the standpoint of the FutureGen Alliance, no, we have not been focusing on that loan guarantee package as a part of that act in 2005.

Senator DOMENICI. In other words it doesn't help you, per se.

Mr. THOMPSON. To be honest I don't really know. So I can say that I'm not familiar with what we may have looked in as the Alliance, we've not been. I do know that we've not been counting on it as part of our process thinking forward.

Senator DOMENICI. I had noted in my statement that it would seem that the Alliance was fully aware of the opposition by the Department with the site selection announcement but decided to move forward anyway. Is that true?

Mr. THOMPSON. I would say actually there was a number of compelling actions taking place even with the Department of Energy that suggested we do move forward. Then there was a letter that was received by the CEO of the Alliance that suggested it was inadvisable to move forward but with no other explanation. That is really the only communication we've had with respect to not making a site announcement.

Senator DOMENICI. Well my staff tells me that it's our understanding that the cooperative agreement is done on a yearly basis to allow both sides an exit option. When DOE signed the current cooperative agreement in 2007 did they not inform you that they wanted a new funding share structure by June 15, of this year?

Mr. THOMPSON. No, sir, they did not in March 2007. The cooperative agreement does, as you suggest, but slightly different, does have budget periods. And at the end of each budget period parties do have the opportunity to not proceed for various reasons. And we are coming up on the end of budget period one.

The cooperative agreement though does have a situation in March 2007 in it where the parties agreed that when we were at the conclusion of budget period one when we now have further esti-

mated, refined our estimates, that does have a phrase in there that allows us, says that we, the Alliance, will work with the Government to provide caps to them. But it is a generic statement saying we will do this at the end of budget period one. So shortly after the signing of the cooperative agreement that is when the Department of Energy said that they really wanted to do that at that point in time not at the end of budget period one.

Senator DOMENICI. Now just in the final, make sure I've got it. The new proposal that DOE is submitting in lieu of FutureGen as you were a part of originally is not of interest to you or your Alliance. Is that correct?

Mr. THOMPSON. Just to be clear, for the Alliance, the Alliance will not be proceeding to respond to it. When you speak as me, as an individual in the utility industry I do welcome all engagement of technology development for coal based fuel and power production. So as an individual I certainly support further efforts to look at technology development in this case the carbon sequestration. As a powerplant provider I'm eventually, certainly very interested in how the carbon will be stored.

Senator DOMENICI. Thank you very much. Thank you, Mr. Chairman.

Senator DORGAN. Senator Durbin?

Senator DURBIN. Mr. Thompson, thank you for being here and for your testimony. And I struggled with Secretary Bodman's explanation of why this was an economically unsustainable project when he couldn't explain to me where the \$1.8 billion came from. As I understand your testimony it is simply the projection of original cost in constant dollars over the period when this project would be built and operated with an inflation rate of about 5.2 percent per year. Is that a correct understanding?

Mr. THOMPSON. That is a correct understanding.

Senator DURBIN. So if he disputes the annual inflation rate. That's one thing. But to ignore inflation is another thing.

It's like saying that I can drive to the airport from this spot anytime, any day and I know I'll arrive there at the same time. We know better. If you leave during rush hour it's going to take a lot longer. If you have a project that's going to take 13 or 14 years to build and operate, it's going to cost more. And that's why I've struggled from the beginning with his explanation as to why he walked away from this project in the manner that he did.

I'd like to go to the point that the chairman raised because it's one that is important. And I think we need to address as to whether or not existing coal-fired plants can be retrofitted in a way to capture CO₂ or other emissions because we're going to face this. I mean in coal country we face it head on. I think about half of our electricity in Illinois comes from coal-fired plants, the other from nuclear.

So I certainly see the merit in his suggestion of moving toward retrofit technologies, but as I understood FutureGen from the start they were looking at geologic formations where we could sequester CO₂ safely over long periods of time. It wasn't a matter of picking an existing plant and deciding whether there was a field nearby where we could sink CO₂ safely. They were looking for one of the best places to experiment.

Is there a current effort underway in this country to in any way develop carbon sequestration on a commercial basis?

Mr. THOMPSON. I am not aware of companies, private companies, trying to commercially pull together a program. So if that will come from the commercial sector I'm not aware of it. And so, I do believe that, particularly for our utility industry and it's a large number in all of this equation, everything that is carbon capture and sequestration related is work that we are doing with public/private partnerships.

Senator DURBIN. Unless we come up with carbon sequestration technology or some alternative that I can't imagine at the moment, it really means that our coal resources in future years could be compromised in terms of their energy potential. Am I correct in that conclusion?

Mr. THOMPSON. I completely agree with that. We have as was said earlier incredibly increasing fuel costs of oil, for example. So you have economic factors. You have the climate factor.

All of these factors come together more than just that. And this is a situation where from an energy security point of view if we can solve this coal, carbon dioxide capture and sequestration issue in a large scale quickly, which is what FutureGen is trying to do. If we can solve that we've also solved some energy security. So economics, energy security and climate all benefit from what we've been trying to do.

Senator DURBIN. Well I think that's a point that really I'm glad is on the record because, you know, if we are dealing with the long term security issue in terms of energy for the United States and we are going to have an energy policy I think we may find that \$1.8 billion is a modest investment for what it can bring back to our Nation in terms of energy security and environmental responsibility. I think those two things will work together. And I'm going to do my best, Mr. Thompson, to work with the Alliance. A lot of companies, utility, coal companies, others that are interested in this, I think have, in good faith have tried to move forward.

I'm afraid as you could tell from the testimony of Secretary Bodman, not much is likely to happen in a positive way while this administration is in power. But I'm not giving up. I'm going to try to work with this subcommittee and my colleagues to keep the FutureGen Alliance concept alive.

And I just want to close by thanking you and all the members of the Alliance. And I also want to thank David Workman who's here, who is the public works director in Mattoon, Illinois. Thank you for joining us. We're not going to quit. We're going to keep working on this. Thank you very much.

Mr. THOMPSON. Thank you, Senator. And the Alliance will continue as well.

Senator DURBIN. Thank you, sir.

ADDITIONAL COMMITTEE QUESTIONS

Senator DORGAN. Mr. Thompson, thank you very much for being with us today. And obviously this discussion and debate and all of the concern about the carbon capture and the technologies necessary to continue to use coal will continue for some while. Senator Durbin, we appreciate your joining the subcommittee today.

We would like to submit some additional questions to the witnesses for their response.

[The following questions were not asked at the hearing, but were submitted to the witnesses for response subsequent to the hearing:]

QUESTIONS SUBMITTED TO HON. SAMUEL W. BODMAN

QUESTIONS SUBMITTED BY SENATOR ROBERT C. BYRD

Question. Mr. Secretary, how do you propose to re-engage the private sector in future ventures after the administration walked out in the middle of the project with the FutureGen Alliance and has barely lived up to its commitments with regard to the Clean Coal Power Initiative?

Answer. The FutureGen Cooperative Agreement between DOE and the Alliance contained clear decision points that envisioned periodic re-assessments as the project progressed. The Department must make sound decisions when determining how to invest taxpayers' funds. The public's interests were not best served by the continuation of the original FutureGen agreement with the Government shouldering up to 74 percent of the project cost, and with the estimated costs increasing and likely to go higher. Therefore, FutureGen is being restructured as a commercial demonstration program to better serve the interests of both the public and industry. The Department received responses from approximately 50 parties to the Request for Information (RFI) issued in January on the restructured approach, and more responses were submitted for the Draft Funding Opportunity Announcement (FOA) that was issued in May. The Department believes that the restructured FutureGen program will have ample industry support; given its orientation toward commercial demonstration projects and the availability of as much as \$1.3 billion in possible cost share. Additionally, because changes to the project were made based on sound reasoning and good faith negotiations, the Department believes that the restructured FutureGen will have the support the program deserves.

Regarding the Clean Coal Power Initiative, we plan to issue the solicitation for a third round later this year.

Question. The Department of Energy is on record for abandoning the FutureGen project primarily based on escalating costs. Escalating costs are a reality for any major construction project. What safeguards will the administration put in place to ensure that any new alternative FutureGen initiatives will not endure the same fate?

Answer. The primary safeguard is that the restructured FutureGen program will be capped at \$1.3 billion for the Federal contribution focused on addressing the Carbon Capture and Storage portion of commercial plants and associated integration issues. Consequently, the restructured program requires a significantly greater industry cost share. The fiscal year 2009 budget proposes statutory language guarding against cost escalation. For example, it limits escalation of the Government cost share to 25 percent of the original award. Furthermore, the Funding Opportunity Announcement explicitly states that DOE does not plan to set-aside funds for cost growth. Industry will be operating the facilities for commercial power production. Hence, industry will have strong incentive to complete the project even if cost increases occur.

Question. The Department of Energy also raised concerns about third-party financing of FutureGen. Is it not true that nearly every coal-fired project in the country, including DOE's own CCPI program, involves financing? Why was the former FutureGen project held to a different standard?

Answer. DOE's financial obligations for the original FutureGen project would have been much higher than on any of our CCPI projects, in terms of both dollar value and cost share percentage. DOE's cost-share for CCPI would be 50 percent or less while its share for the original FutureGen was 74 percent. If project financing were allowed under such a circumstance, then lenders could have taken a lien on the entire facility and future cash-streams, making it much more difficult for DOE to complete the project if the Alliance chose to terminate the agreement. This arrangement would have presented too much risk to the taxpayer.

For restructured FutureGen where DOE will contribute only the incremental cost of the CCS related portion of the plant, our assumption is that commercial power producers investing at least 50 percent (compared to only 26 percent in the original FutureGen), and potentially upwards of 75 percent or more of the project cost will have a strong incentive to complete the project. Hence, project financing in this case will not expose DOE to as great a risk of project abandonment.

Question. The agency has contended that the revised FutureGen approach will place emphasis on gaining early commercial experience validating clean coal technologies through multiple demonstrations of Carbon Capture and Storage (CCS) technology in commercially operated Integrated Gasification Combined Cycle (IGCC) electric power plants. How realistic is it to expect that these projects will be on line quicker than the original FutureGen project, given that DOE will need to evaluate new proposals, make selections, conduct environmental reviews for new projects, and realize commercial operations?

Answer. The restructured program will be premised on multiple commercial demonstration projects, rather than a single R&D plant. This strategy will produce more commercial plants sooner. Depending upon the number and nature of proposals received, we expect multiple projects that can enter commercial operations as soon as 2015.

Under the original approach, the R&D plant would have initiated R&D test operations in 2012 or 2013, and those operations would have continued for 3 years, after which separate commercial projects would have followed and entered commercial operations around the 2020 timeframe.

Question. The revamped FutureGen and CCPI-3 are starting to look a lot alike. What are the key differences?

Answer. The key differences are that CCPI is focused on getting new, low-cost and efficient carbon capture technologies that mature from the R&D sub-pilot scale to be tested and demonstrated in clean coal projects, while FutureGen's primary goal is aimed at demonstrating at a commercial scale multiple IGCC (or other advanced coal) power plants with carbon capture and storage (CCS) using a variety of coals. Furthermore, FutureGen requires the storage of at least 1 million metric tons CO₂/yr in a saline reservoir, while CCPI will require a lesser amount of CO₂ capture and allows for the beneficial reuse and/or permanent storage of the captured CO₂ from the power plant. Both FutureGen and CCPI provide expanded demonstration experience for integrated power plants with CCS. Both programs aim to provide valuable commercial experience for these clean coal technologies, and FutureGen's goal of capturing as much as 90 percent of CO₂ along with CCPI's demonstrations to integrate CCS with power generation are complementary and necessary activities leading to affordable near-zero emission coal plants with CCS.

Question. I understand that the revamped FutureGen effort will not continue as 74 percent Federal/26 percent private cost-shared demonstration projects. Please explain how the agency will determine its financial role in the revamped FutureGen program.

Answer. Under the restructured FutureGen approach, the Government would contribute a portion of the incremental cost of implementing the CCS portions of the demonstration when compared to a state of the art facility without such technology, and up to 50 percent of the total allowable project costs. For example, if a project proposes a greenfield IGCC facility that would have a total project cost of \$1 billion without CCS and \$1.4 billion with CCS, then DOE's maximum contribution to the project would be \$400 million.

Question. How much funding is expected to be available for FutureGen and for Round 3 of the Clean Coal Power Initiative (CCPI-3)? What are the out-year budget implications for FutureGen? How many projects do you anticipate funding under FutureGen and how many under CCPI?

Answer. For FutureGen, we expect to have \$290 million available through fiscal year 2009, plus \$1.01 billion in the out-years, for a total of \$1.3 billion. For CCPI we expect to have \$224 million available for Round 3, plus significant funding over the next several years in order to pursue a fourth round solicitation. The number of projects is highly dependent upon the amount of funding available and the number and nature of the proposals received.

Question. Will you be proposing a forth round of CCPI as originally planned, and when do you expect that to happen? How will out-year funding for FutureGen impact the ability to fund these important future rounds of CCPI?

Answer. We are currently focused on Round 3 of CCPI. Out-year funding for FutureGen is not expected to impact the ability to fund future rounds of CCPI.

Question. I understand that \$134 million of the \$173 million appropriated for the original FutureGen project is unobligated. Does the agency intend to submit a reprogramming request to the congressional committee of jurisdiction to make the \$134 million available for the restructured FutureGen?

Answer. No, at this time we do not believe that we will need to reprogram funds. However, we will correspond with the appropriate committees in advance of any award to discuss our needs for financing. As a matter of policy, the Department typically abides by the reprogramming guidance provided by the appropriations subcommittees each year. The general reprogramming guidance contained in the Ex-

planatory Statement accompanying the Consolidated Appropriations Act, 2008 is that a “reprogramming includes the reallocation of funds from one activity to another within an appropriation, or any significant departure from a program, project, activity, or organization described in the agency’s budget justification.” There has been no change in the description of the fundamental goal of FutureGen. Both the Department’s fiscal year 2008 and fiscal year 2009 budget justifications describe FutureGen as a program that “will prove the technical feasibility and economic viability of the near-zero atmospheric emission (including carbon) coal concepts.”

Question. I understand that \$39 million of the \$173 million appropriated for the original FutureGen project was obligated. What return on investment is there to show the taxpayer on this obligation?

Answer. We believe the knowledge gained and lessons learned over the past 5 years will be very helpful as we move forward with the restructured approach. The original approach provided a great deal of valuable information, especially in terms of siting processes for coal-based power plant projects equipped with carbon capture and storage, as well as conceptual and preliminary design parameters, equipment specifications, and a preliminary cost estimate. This information may also be insightful during the early stages of the restructured program, and will provide value in the form of analytical techniques and thought processes that were developed and utilized. Additionally, we have four sites that were identified in the Environmental Impact Statement as suitable candidate sites that could be eligible for proposed projects under the restructured FutureGen. Much of the environmental and siting information has been gathered on these sites, which will be useful in future projects.

QUESTIONS SUBMITTED BY SENATOR WAYNE ALLARD

Question. Did the administration work with industry when making their restructuring decision to ensure that the decision was one that was workable for industry?

Answer. On January 30, 2008, DOE issued a Request for Information (RFI) seeking industry comment on the restructured project. DOE has taken those industry comments under consideration and published a Draft Funding Opportunity Announcement (FOA) on May 7, 2008, in order to give industry a second opportunity to comment on the restructured approach before the final FutureGen FOA is released.

Question. Mr. Secretary, will there be special consideration given to proving carbon capture and storage capabilities at high altitudes?

Answer. All projects will be evaluated fairly on their merit and strength of proposal. If a project that proposes CCS happens to be located at high altitudes, and is otherwise a strong project, it will be given due consideration along with the other projects during the selection process.

QUESTIONS SUBMITTED BY SENATOR RICHARD J. DURBIN

Question. President Bush announced the FutureGen Initiative in February 2003. It was called a \$1 billion initiative with DOE carrying 80 percent of the cost—\$800 million. In March 2007 the Department of Energy signed a cooperative agreement with the FutureGen Alliance stating that DOE’s share of the project would be \$1.1 billion, approximately 40 percent more. Ten months later, in January 2008, DOE cancelled the project, citing increasing costs.

If the cost estimate and terms were acceptable in March 2007, why were they suddenly unacceptable a few months later?

Answer. The 2004 Report to Congress on FutureGen identified the following funding sources: \$500 million from DOE for the base plant; up to \$120 million in DOE funding for the sequestration component, with the possibility of industry cost share reducing the DOE share; \$250 million from the FutureGen consortium, and \$80 million from international partners. The Department became concerned about cost increases in early 2007. Our concerns over future cost escalations prompted a series of meetings between the Department and the FutureGen Alliance in an attempt to resolve the cost containment issues. Through December 2007, the Department still hoped that a suitable arrangement with the Alliance could be achieved. Unfortunately, an agreement could not be reached, and we decided to restructure the FutureGen project to better build upon technological advances achieved in CCS technology through Federal and private R&D work, as well as changes in the marketplace including more IGCC projects proposed for construction.

Question. How can DOE claim that its costs have doubled?

Answer. In the Report to Congress in 2004, DOE provided a project estimate of \$950 million in “current year dollars” without escalation in an attempt to identify

the scale of the project. It was not until the Alliance completed their conceptual design in 2007, that the \$1.8 billion (“as spent” dollars) estimate was finalized. Therefore, the \$950 million estimate in constant year 2004 dollars is now estimated to be \$1.8 billion in escalated “as spent” dollars for the same project scope.

Question. I want to understand when DOE made the decision to pull the plug on FutureGen. On November 8, 2007, Acting Principal Deputy Assistant Secretary Slutz wrote to me, informing me that the Environmental Impact Statement would be issued the next day and that DOE would issue a Record of Decision after the public comment period. Again on November 30, you notified Congress that a Record of Decision would be issued and a site would be selected by the end of the year. Then on December 18, 2008, DOE issued a press release that the program would be restructured.

DOE’s decision to restructure was made sometime between November 30 and December 18?

Answer. DOE’s final decision to restructure the FutureGen project was made on January 30, 2008 after it was determined that DOE could not reach a mutually agreeable restructured cooperative agreement with the Alliance.

Question. Whom specifically at the Alliance did Mr. Albright speak with?

Answer. Under Secretary Albright spoke with representatives from member companies of the Alliance.

Question. Did you personally ask any members of the Alliance not to make the site announcement? Please instruct Mr. Albright to send the subcommittee a list of FutureGen Alliance managers that he personally spoke with between November 30 and December 18. His list should include a brief explanation of what was said in each conversation.

Answer. On December 11, 2007, the Department advised the Alliance not to move forward with any site selection announcement through a letter sent by Acting Principal Deputy Assistant Secretary Jim Slutz. Under Secretary Albright spoke with representatives of member companies of the Alliance, asking them not to move forward with a site selection announcement in light of the nature of the negotiations that were taking place between the Alliance and DOE.

Question. We have established that DOE’s restructuring decision was made sometime between November 30 and December 18. What specifically prompted you in this 19-day period to scuttle the program?

Answer. DOE’s final decision to restructure the FutureGen project was made on January 30, 2008 after it was determined that DOE could not reach a mutually agreeable restructured cooperative agreement with the Alliance.

Question. I have some questions about the new program you’ve proposed to replace FutureGen at Mattoon. DOE released a draft solicitation yesterday and announced that a final solicitation will be released in mid summer. Furthermore, DOE expects to select projects in December, maybe 5 months later—conveniently in time for a new administration to be saddled with this new program.

From the time of the Request for Proposals, how long did it take DOE and the Alliance to select the Mattoon proposal?

Answer. DOE did not select the Mattoon site proposal. The Alliance issued its Request for Siting Proposals in March 2006, and unilaterally announced its site selection (Mattoon) in December 2007.

Question. What effort went in to preparing those proposals?

Answer. The proposals included extensive site characterization efforts, which should be considered by prospective developers who are evaluating Mattoon, Tuscola, Jewett or Odessa for a possible site to bid on the new FutureGen solicitation when it is released.

Question. And in the new program you expect the site characterization, system design, proposal writing, and proposal review process to take only 5 months?

Answer. Yes, though a comprehensive site evaluation under NEPA will take place after conditional project selections are made, and will require 18 to 24 months in parallel with preliminary project design activities.

Question. The intent of the proposed program is for DOE to cover the additional costs of a carbon capture and sequestration system tacked on to a commercial power plant?

Answer. Under the restructured FutureGen approach, the Government would contribute a portion of the incremental cost of implementing the CCS portions of the demonstration when compared to a state of the art facility without such technology, and up to 50 percent of the total allowable project costs. For example, if a project proposes a greenfield IGCC facility that would have a total project cost of \$1 billion without CCS and \$1.4 billion with CCS, then DOE’s maximum contribution to the project would be \$400 million.

The CCS system will reduce plant efficiency substantially. For instance, the CCS system will draw much electricity that would otherwise be sold on the grid. Currently, these costs are not covered in the latest draft solicitation.

Question. The costs of less efficient electricity production will be passed on to the ratepayers?

Answer. There will be costs for controlling carbon emissions, just as there have been costs associated with controlling other types of emissions. The determination of what costs will be passed on to rate payers would be made by the project owners and/or the regulators depending on the electricity market territory.

QUESTIONS SUBMITTED TO PAUL W. THOMPSON

QUESTIONS SUBMITTED BY SENATOR WAYNE ALLARD

Question. What is the project doing to ensure that the results of the project are something that industry can pick-up and integrate into current or future facilities smoothly?

Answer. Facilitating the rapid transfer of project results to a broad cross-section of the industrial community, with a goal of stimulating subsequent commercial near-zero emissions coal projects, is an important aspect of FutureGen at Mattoon. Further, it is our view that this transfer of the results must be continuous throughout the project.

The first step taken by the Alliance to facilitate the sharing of results was to incorporate as a non-profit organization and welcome all coal-fueled utilities and coal companies to participate. This has at least two major benefits. First, the industrial backers of subsequent commercial projects have an open and equal opportunity to gain hands-on knowledge through their early participation in FutureGen at Mattoon. Second, the non-profit structure of the Alliance prohibits participating companies from gaining preferential intellectual property benefits or financial returns; thus, participants do not have the traditional for-profit motivation of keeping knowledge to themselves for individual corporate advantage. Instead, they benefit through the accelerated advancement of the technology.

DOE's proposed approach for restructuring FutureGen will intertwine the advancement of technology with commercial ventures. This will incentivize participants to limit information sharing in order to improve their own competitive advantage and gain a direct financial return on their investment.

One can look to the Alliance website, www.FutureGenAlliance.org, for evidence of the Alliance's early efforts to share results. During the siting process, the Alliance published a comprehensive set of siting criteria that were designed to help select a suitable power plant site that also offered safe, permanent sequestration opportunities. We believe that these criteria and the methodology can, and should, be adapted to the specific needs of future commercial projects in order to aid in the selection of high quality sites.

As a second example, upon completion of an initial conceptual design and cost estimate, documentation of this work was publicly distributed and is also posted on the Alliance's website. On typical DOE clean coal projects, and almost certainly on projects that are part of DOE's proposed and restructured program, program participants will not publicly share information at this detailed level.

As FutureGen at Mattoon moves from design to construction and operation, the pace of information sharing will only increase.

Questions. As this is a "global public-private partnership" can one of you share with us some of the contributions being made by the global community?

What is the plan for sharing the results of these demonstration projects with industries and markets outside of this country?

Answer. There are currently 13 industrial members of the non-profit FutureGen Alliance, which has joined in a global public-private partnership with DOE. Approximately one-half of the participating companies are headquartered overseas. These overseas companies currently plan to provide approximately one-half of the approximately \$400 million to FutureGen at Mattoon with no expectation of corporate financial return. Thus, funding to a DOE program is a major contribution by the global community.

In addition, the global community is providing technological know-how through the industrial member companies, independent technical experts, and technology vendors. This is a hallmark of FutureGen at Mattoon, as the United States is benefiting from the best and brightest minds around the world in its effort to design and build this first-of-a-kind power plant. This is important so that we can ensure that the power plant is truly state-of-the-art. It is also important because sequestration

technology will only be a viable part of a comprehensive response to climate change if it is viewed globally as technically and socially acceptable. Involvement of the global community during the design process will help ensure ultimate stakeholder and commercial acceptance of sequestration technology.

With respect to sharing results with the international industries and markets, this will take place in several ways. In all cases, export laws, other regulations, and the rights of participating technology vendors will be respected. Consistent with this, there is substantial know-how, particularly related to sequestration, operational data, procedures and experience, design approaches, and lessons-learned that can be shared internationally and to the benefit of the United States. Among other approaches, publications, participation in industrial forums, and participation in scientific forums will be used. Further, technology vendors participating in FutureGen at Mattoon will be well positioned to sell selected, U.S.-made technologies to international markets. This will improve U.S. trade and at the same time important progress will be made in globally deploying near-zero emissions technology that addresses climate change and energy security concerns.

It is also important to note that the technologies developed as part of FutureGen at Mattoon will also be shared throughout the United States. As an example, the FutureGen at Mattoon plant is fuel flexible in terms of the coals it can gasify. So, while it is located in the Midwest, it will be able to gasify eastern coals and western coals, such as Powder River Basin coal.

CONCLUSION OF HEARING

Senator DORGAN. This hearing is recessed.

[Whereupon, at 11:09 a.m., Thursday, May 8, the hearing was concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

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