

**DISCUSSION DRAFTS CONCERNING  
ENERGY EFFICIENCY, SMART  
ELECTRICITY GRID, ENERGY POLICY  
ACT OF 2005 TITLE XVII LOAN  
GUARANTEES, AND STANDBY LOANS  
FOR COAL-TO-LIQUIDS PROJECTS**

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**HEARING**

BEFORE THE  
SUBCOMMITTEE ON ENERGY AND AIR QUALITY  
OF THE

COMMITTEE ON ENERGY AND  
COMMERCE  
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

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**THURSDAY, MAY 24, 2007**

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON ENERGY AND AIR QUALITY,  
COMMITTEE ON ENERGY AND COMMERCE,  
*Washington, DC.*

The subcommittee met, pursuant to call, at 10:10 a.m., in room 2123 of the Rayburn House Office Building, Hon. Rick Boucher (chairman) presiding.

Members present: Representatives Butterfield, Barrow, Markey, Wynn, Doyle, Harman, Allen, Gonzalez, Inslee, Baldwin, Ross, Weiner, Matheson, Dingell, Hastert, Hall, Upton, Whitfield, Shimkus, Shadegg, Pickering, Buyer, Bono, Rogers, Burgess, and Barton.

Staff present: Sue Sheridan, John Jimison, Chris Treanor, Laura Vaught, Margaret Horn, David McCarthy, Kurt Bilas, and Matt Johnson.

**OPENING STATEMENT OF HON. RICK BOUCHER, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF VIRGINIA**

Mr. BOUCHER. Earlier this year, the Speaker announced that in July the House will debate a comprehensive measure to reduce U.S. reliance on petroleum, 60 percent of which is imported. That importation comes from some of the world's least politically stable nations. To enhance our economic health and our national security simultaneously, there is a broad consensus that we should develop domestically produced alternatives to petroleum in order to power transportation and reduce energy consumption broadly across our economy for water, energy, efficiency, and conservation measures.

A number of House committees are currently developing legislation for the July energy independence measure, and this committee is making a major contribution to that effort. This morning the subcommittee is conducting a legislative hearing on four titles that will be a portion of our contribution to the Speaker's energy independence July agenda. In June, we will conduct a second legislative hearing on additional titles that are presently being constructed. For purposes of subcommittee mark-up, we will combine the subject matter from today's hearing with the additional titles so that

our entire contribution to the Speaker's Energy Independence Measure will be subject to a single mark-up in subcommittee and then will be marked up in the full Committee on Energy and Commerce.

The titles that we are discussing this morning address four objectives. We propose to reduce energy consumption through the adoption of 29 separate new energy efficiency measures. They range from new consensus appliance standards to requirements for improvements in lighting efficiency, green building provisions, industrial waste energy recovery, and new processes under which DOE will expedite the approval of future energy efficiency standards.

A second title will promote the development of a smart electricity grid so that consumers can elect to save money by shifting electricity consumption to off-peak hours, a step that will help maximize the capacity of power-generating stations. Many exciting uses for the smart grid lie ahead, including using plug-in vehicles as storage units for electricity generated by utilities during non-peak hours which then can be drawn back from the vehicle batteries during times of higher electricity demand. Our provisions that are contained in the second title will help to promote the deployment of that smart grid.

Our other two titles are designed to promote domestic alternatives to petroleum. In EPACT 2005, we enacted loan guarantee authority for DOE to help bring innovative technologies and biofuels to the commercial market. To date, loan guarantees have not been awarded, and DOE has misconstrued congressional intent by refusing to offer guarantees equal to the full 80 percent of the project cost that the statute contemplates. Consequently, commercial scale cellulosic ethanol production in the United States has been held back. Our loan guarantee language corrects that misinterpretation and upon its passage and the award of guarantees, we can expect commercial scale ethanol production from cellulose to commence in at least one site in the United States and future plants in other States are also now under consideration also pending the award of DOE granted loan guarantees.

The final title will offer a Federal price guarantee for six coal-to-liquids facilities resolving uncertainties in the long-term outlook for world oil prices that have inhibited the flow of private capital into coal-to-liquids facilities.

If we truly want to substantially lessen our reliance on petroleum, cellulosic ethanol from biomass and coal-to-liquids from our single, most-abundant resource which is coal offer the promise for success. The developers of these new liquid fuel resources have signaled a willingness to construct plants if our provisions become law.

Finally, in this opening statement, let me re-emphasize that the primary purpose of the legislation that we are developing for the Speaker's July floor action is energy independence. That is in accordance with the Speaker's direction to various committees that are currently constructing legislation that will contribute to that energy independence agenda. The primary purpose of our action that we are considering today and will consider in the legislative hearing to follow this one in June is not greenhouse gas controls. We have adopted a "do no harm" principle for this legislation and

what we will consider in our next legislative hearing with regard to greenhouse gas emissions. Nothing that we are doing here will worsen greenhouse gas emissions. But the primary purpose of the legislation we are processing in this timeframe, hearing today and also hearing in June and then marking up in June, in this subcommittee and on the full committee, will be achieving a greater American energy self-sufficiency.

In September, this subcommittee and the full Energy and Commerce Committee will process a mandatory greenhouse gas measure, and I want to stress again that that will happen in the fall of this year. We will be processing a mandatory greenhouse gas control measure through this subcommittee and full committee. We have conducted 10 days of hearings in this subcommittee this year on the subject of climate change, and immediately following the July passage of the energy independence bill that we are now processing, we will return our attention in this subcommittee to climate change and the construction of our mandatory legislation for consideration in this subcommittee and the full committee during September.

I want to thank all of the members of the subcommittee who have shared their suggestions with us for the measure that we are having our hearing regarding today and for the legislation we will be considering in a second legislative hearing in June. Members have shared ideas with regard to alternative fuels and energy efficiency, and many of the Members' recommendations are reflected in the legislation that is before the subcommittee at the present time.

This has been a broad, bipartisan process, and I want to say thank you to Members on both sides of the aisle for their participation and for sharing ideas and recommendations with us. That concludes my opening statement.

I am pleased at this time to recognize the gentleman from Michigan, Mr. Upton, for 5 minutes.

Mr. UPTON. I am going to defer my time, the 3 minutes. But I might ask unanimous consent to put in Mr. Hastert's opening statement as I know he is on his way.

Mr. BOUCHER. Without objection, opening statements submitted by all Members will be made part of the record. And the Chair would note that pursuant to the rules of the committee, any Member who waives an opening statement will have the time allotted for that statement and to that Member's question period for the first panel of witnesses.

The gentleman from Illinois, Mr. Shimkus.

**OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS**

Mr. SHIMKUS. Thank you, Mr. Chairman. I will be brief. I want to commend you on the movement on energy security legislation. I think it builds on what we did in EPACK 2005, and the basic efficiency, smart grid, loan guarantees, CTL, I can't think for all my colleagues on this side but I do think you are going to have a lot of support on this provision, and you can count me as an ally as we move this piece of legislation forward.

The best thing we can do on energy security and high prices is have more supply. We started that with EPACT 2005 with the renewable fuel standard. We are going to do that in this bill with using a great resource of coal. And when you have more supply, especially internally, the coal-to-liquid applications, you not only have the commodity product, but you will build refineries. I mean, that is what we are missing. We are missing the commodity product and we are missing refinery capacity, and with this we can get both. And everybody is worried about high prices, but the best thing you can do is get more competitive fuels into the mix. So I really applaud you on that. Thanks for working with me, and I yield back my time.

Mr. BOUCHER. Thank you very much, Mr. Shimkus. The gentleman from Massachusetts, Mr. Markey, is recognized for 3 minutes.

**OPENING STATEMENT OF HON. EDWARD J. MARKEY, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF MASSACHUSETTS**

Mr. MARKEY. Thank you, Mr. Chairman. Thank you for the excellent series of oversight hearings which you have had on this legislation of the energy efficiency and smart grid drafts inside of your proposal. Both move in the right direction, and I commend you and your staff for all the work that went into these provisions. On appliance efficiency, you have built on the foundation laid out by the committee in 1987, 1992, and 2005 when we gave to you the power to issue National Appliance Efficiency Standards and then expand those powers. You have responded to some of the concerns raised by efficiency advocates, about problems with DOE's management of this program. And I look forward to working with you and the committee members on additional ideas to strengthening these provisions.

For example, today I will be introducing companion legislation to Senator Pryor's bill to strengthen the Federal Government's Energy Efficient Buildings Program and the Federal Government's ability to use energy savings performance contracts.

At the same time, I do have some real concerns about the coal-to-liquids bill before us today. At the subcommittee hearing 2 weeks ago on alternative fuels, EPA confirmed that without sequestration, coal-to-liquids would increase carbon dioxide pollution by 118 percent compared to diesel fuel made from petroleum. EPA also said they were only assuming only 85 percent capture in the sequestration models, meaning that there would be a 15 percent leakage in their estimates for carbon capture and sequestration systems. Rather than subsidize transportation fuel that at best fails to reduce carbon emissions, and at worst increases carbon pollution substantially, it seems to me that a much better way for coal as well as the rest of the electric power sector, is to get into the business of providing electricity for the transportation sector that not would be to accelerate efforts to develop plug-in electric hybrid vehicles. And for coal, we should accelerate efforts to demonstrate carbon capture and sequestration on a commercial scale.

The discussion draft before us does however omit the most important and easy step we can take to reduce our dependence on for-

eign oil and that is a CAFE standard, an increase in the fuel economy by 4 percent per year, up to 35 miles per gallon. The draft also omits an energy efficiency resource standard. Today I am introducing a bill which would call for a 10 percent improvement in electric utility efficiency, and a 5 percent improvement in natural gas utility efficiency by 2020. Then I might also add that the legislation also does not include a renewable energy standard, renewable portfolio standard, which is the single most important thing which would drive green, renewable energy generation standards. And I think as we move forward, it would be important for us to find ways to include all of these in any final legislation.

I thank the chairman for all of his great work, and I yield back the balance of my time.

Mr. BOUCHER. Thank you very much, Mr. Markey. The gentleman from Indiana, Mr. Buyer, is recognized for 3 minutes.

Mr. BUYER. I will waive.

Mr. BOUCHER. The gentleman waives an opening statement. The gentleman from Michigan, Mr. Rogers is recognized for 3 minutes.

**OPENING STATEMENT OF HON. MIKE ROGERS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN**

Mr. ROGERS of Michigan. Thank you. Mr. Chairman, I appreciate your efforts here and look forward to working with you for a successful conclusion here. And I want to highlight just the loan guarantee section of the bill, and I agree with Mr. Markey. We need to do something. But I think there is a better way we can get there, and I hope to use the section that maybe we can come up with a proposal that rewards innovation and rewards our Big 3 for unleashing intellectual capital on the problem of alternative fuel vehicles.

A great example is General Motors announced the Volt at the last auto show which gets 540 miles to the tank. It is a gasoline engine that recharges lithium ion batteries, but after several million dollars, it is not quite ready to go yet. They still have some technical difficulties that will cost a lot of money. If we just allow them to have access to capital, specifically for research and development on these vehicles, they are going to get us to where we want to go, and I think there is some room here to work together so that we can find an alternative. Rather than a big, heavy regulatory scheme, let us let them unleash this lithium ion battery or maybe it is a more efficient ethanol engine or maybe it is a more efficient biodiesel fill-in-the blank. I think there are places that we can go where we all can agree that meets the chairman's understanding of how we do better at domestic alternatives to petroleum, as he says.

I look forward to working with the committee. Hopefully we can talk about this section, and I really applaud the chairman's efforts on the bill. I yield back my time.

Mr. BOUCHER. The gentleman from Pennsylvania, Mr. Doyle, is recognized for 3 minutes.

**OPENING STATEMENT OF HON. MIKE DOYLE, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA**

Mr. DOYLE. Mr. Chairman, I am pleased to be here today as we take these first critical steps toward making America more energy secure while also beginning our fight against global warming. It is a testament to you and this committee that the bill before us achieves both of these critical goals.

As we all know, our Nation's dependence on foreign oil not only results in hard times at home when we fill our tanks, but it leads to difficult foreign policy decisions as we pursue our national interests within the world community. It is simply not strategically acceptable for the United States to be in a position where we import more than 60 percent of the crude oil our citizens consume. However, while we achieve the goal of energy independence, it is critical that it is attained in a manner consistent with our dual goal of combating global warming. The bill achieves this balance. As we work to meet these challenges, it is important to remember there is no silver bullet that will solve them. It will take an economy-wide balanced approach that sets a clear path that is both ambitious and attainable. This path must recognize the situation on the ground and set goals that can be advanced through the development of new and innovative technologies as well as improvements in production and efficiency. We must look toward all fuel sources and find ways to create new forms of power while further developing a means to use the current fuels in a more environmentally supportive way.

I have never seen a time during my years in Congress where we have such a real opportunity to work together from the environmental community to our industrial base, from our home towns to distant shores, and from Democrat to Republican to make tremendous advances on both our critical goals. The question is no longer if we will act, the question is how long will it take. I stand ready to work with every option on the table to find a solution that will not only move us forward in the near term but will achieve our mutual goals in the long term. After all, there isn't anybody on this planet that believes that the question of global warming, or for that matter energy independence, is just a 5-year problem. This is a 50-year-plus goal, a goal that we are putting our Nation on a path to achieve. The question is not if we are going to reduce our emissions by 80 percent, it is how we are going to do this and how long it takes. Today is the first step. I hope my colleagues and all stakeholders on each side of this debate will join me on this step. While this bill does not have everything every member of this committee would like to see in it, I think this bill is our Nation's first down payment toward achieving energy independence and fighting global warming. I look forward to working with you, Mr. Chairman, and the members of this committee and all the various stakeholders to ensure that we are successful at meeting these critical national goals. I thank you, and I yield back the balance of my time.

Mr. BOUCHER. The gentleman from Texas, Mr. Barton, the ranking member of the full Energy and Commerce Committee, is recognized for 5 minutes.

**OPENING STATEMENT OF HON. JOE BARTON, A  
REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS**

Mr. BARTON. Well, thank you, Mr. Chairman. I want to compliment you for the number of hearings that you have held. The fact that you have actually circulated a discussion draft and have held a legislative hearing on it, accepting comments from us on the minority side. We may surprise you. We may have a few suggestions for improvement. It is good to know that there is at least one subcommittee that is actually trying to use the process, so I am extremely pleased. And I must say, in looking through the draft, the staff briefing on it yesterday, there are quite a few items in it that I think we can work together on. So I am very pleased that we are in the process that you are using and hope that we will have an outcome later this summer that results in legislation that might actually make it to the President's desk. So I am extremely positive about what you are undertaking.

I do think there are some priorities as we go through this process that we ought to keep in mind. First, let us make sure that we keep the lights on in America. Let us make sure we keep our cars and trucks on the road, and with a choice of fuels that are affordable, and let us try to do no harm to the economy. Let us try in whatever we do make sure that we keep the economy going as strongly as possible.

There are a number of things that are before us today in your discussion draft that I believe could be helpful in meeting those goals. Your energy efficiency title and your smart grid technology certainly should be able to help keep our electricity grid strong and help keep the lights on. If we reduce the need to build additional power plants, that is obviously something that is a positive thing; and we may be able to utilize some of the promises of some of the new technologies that are coming down the road.

There are some things that give me pause. You have a number of mandates in the discussion draft. It would seem to me that before we begin to mandate various actions, no matter how beneficial they may appear on the surface, we should give those potential mandates special attention. I know it is tempting to direct that there be a beneficial outcome and just close our eyes and close off our ears that no bad things will happen, but I think we need to really look at the cost and the benefits on the mandates. As the FTC economist said yesterday, the test should be put to every proposal. Does it increase supply or decrease demand? Because that is the only way to truly lower energy prices. I hope that we will buy some insurance against unintended consequences by sunseting any mandates that we decide should be attempted. We should recognize the technology involving technology that is developed in the marketplace oftentimes provides more efficient solutions than statutory mandates.

On your smart grid proposal, I am very positive about that. I do believe, though, that we ought to be careful that we don't end up bureaucratizing the deployment of it so that it actually slows it down. I am very interested in working with you and others in doing things that speed it up as opposed to just bogging it down in bureaucratic timetables and things like that.

I am very pleased with the discussion draft provision on the loan guarantee program that was established under title XVII of the Energy Policy Act of 2005. This is a program that needs to get up and running as soon as possible. It is an amazement to me that plain language, 80 percent, has somehow been interpreted by the Department of Energy and the Office of Management and Budget to be 80 percent of 80 percent or 72 or 90 percent or whatever their latest definition is. It is also a puzzlement to me that Internal Counsel's Office in the Department of Energy has been put in charge of that program. That makes absolutely no sense to me.

Your coal-to-liquid proposal is worthy of serious consideration. As we all know, coal is our most abundant natural resource in the United States, and in spite of some of the ads that have been popping up around Capitol Hill in some various periodicals, I do believe that we can work with the technologies and that resource to find a way to make that a reality.

So Mr. Chairman, in closing, let me simply say that it is very refreshing to have a discussion draft circulating. It is very positive you are holding a legislative hearing, and it is very commendable of you that you are willing to take suggestions from both sides of the aisle on how to improve it. With that, Mr. Chairman, I yield back.

Mr. BOUCHER. Well, thank you very much, Mr. Barton, and we very much look forward to working with you as we take further steps on this measure. The gentleman from Michigan, Mr. Dingell, chairman of the full committee, is recognized for 5 minutes.

**OPENING STATEMENT OF HON. JOHN D. DINGELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN**

Chairman DINGELL. Mr. Chairman, I thank you, and I commend you for your diligence and for the extremely competent way in which you have been pursuing energy legislation and bringing this subcommittee to this point in the legislative process.

Over the years, energy legislation has been a major concern of this committee but remains a continuing focus and challenge. Less than 2 years ago, Congress enacted the Energy Policy Act of 2005 which touched on matters ranging from electricity markets to oil and gas policy to renewable energy. Today, the committee proposes and prepares to take the next by holding legislative hearings on our discussion draft as circulated by you last week.

I commend you, Mr. Chairman, for your efforts in identifying areas that will improve our Nation's energy policy, help consumers, and buffer our country from market instability. Today's hearing will receive testimony from witnesses on the substance of the discussion drafts that address several of the areas in the committee's jurisdiction.

The Speaker has asked the committees with energy-related jurisdiction to report legislation before the Independence Day district work period. These four discussion drafts represent a solid beginning and as you, Mr. Chairman, have indicated, will be followed by drafts on other significant matters. Today's hearing will help Members define areas of concern and areas of potential agreement regarding energy efficiency, smart electricity grid, DOE loan guaran-

tees, and coal-to-liquids programs. This will take us one step closer toward reporting legislation which will build upon our past work and which will we hope benefit our Nation's future.

I look forward, Mr. Chairman, working with you and all members of this subcommittee and the committee in the coming weeks and to the testimony of today's witnesses. Thank you, Mr. Chairman.

Mr. BOUCHER. Thank you very much, Chairman Dingell. The ranking member of this subcommittee, the gentleman from Illinois, Mr. Hastert, is recognized for 5 minutes.

**OPENING STATEMENT OF HON. J. DENNIS HASTERT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS**

Mr. HASTERT. I thank you, Mr. Chairman, for holding this hearing on draft legislation for energy efficiency, smart grid, the Title XVII Loan Guarantee Program under the Department of Energy and coal-to-liquids. I also want to thank the witnesses for being here today. We have already held hearings on many of these topics, so we have some background to help us and to evaluate the discussion drafts. Some of it is new and may lead to added questions. I hope our witnesses will be able to provide us with the background we need.

I look forward to working on this legislation as it moves through the regular order in the committee process. The draft legislation includes a section on lighting, a topic that I am very interested in. I understand that the industry and efficiency advocates are working on consensus language regarding incandescent bulbs. They have been working at this for a while, and hopefully their efforts will come to a fruition.

I would like to be able to include language that has been arrived at a consensus rather than dictating a result. Advances in lighting technology will help the United States reduce significantly the amount of energy it uses. I support that, and I also support good, low-energy use lighting that is also green without the use of mercury, and we need to continue to look at that as well.

The draft legislation also includes a fix for the Title XVII Loan Guarantee Program that was established by the Energy Policy Act of 2005. It is unfortunate that we even have this piece of legislation because I think the language in title XVII is clear. However, if this draft language gets the loan guarantee program moving now, then I support it. We need these loan guarantees to help finance the next generation of nuclear power plants and alternative fuel facilities like cellulosic ethanol and coal-to-liquid. The discussion draft also contains a title to provide support for six coal-to-liquid projects. I wholeheartedly support coal-to-liquids. The U.S. has more coal than anyone else in the world, and hence, we have the ability to have more energy than anybody else in the world. We should use those abundant coal resources to increase our energy security and reduce our reliance on imported oil by using coal to make transportation fuel. The technology exists, we just need to be able to economically deploy them in the United States, and we should all work toward that goal.

This is the first step in getting this legislation ready for the floor. I understand that other parts of potential legislation dealing with

alternative fuels and infrastructure is still under development. Those sections may be controversial. I will judge the proposed legislation on the full package, not just on individual pieces. It is the full package that will be voted on eventually. That is what must be evaluated in this committee.

I look forward to working with the members of this committee and the full committee as the full legislative package goes through regular order. Mr. Chairman, again I thank you, and I look forward to today's testimony.

Mr. BOUCHER. Thank you very much, Mr. Hastert. The gentlelady from California, Ms. Harman, is recognized for 3 minutes.

**OPENING STATEMENT OF HON. JANE HARMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA**

Ms. HARMAN. Thank you, Mr. Chairman. As is evidenced, our districts are very diverse. Yours obviously is a coal-dependent district, and I think that coal is part of our future; but like Mr. Markey, I would much prefer to stress carbon capture and sequestration than coal-to-liquid. Some come from Michigan, the home of the Big 3. I would point out that my district is home to Toyota and Honda, and Toyota is now No. 1 at least in terms of sales in the United States and has been highly innovative with respect to hybrid vehicles. My district also has an enormous amount of energy efficiency technologies, and each of us can tell a different story. You have a hard job to put all of this in a bill that moves us forward and does what Al Gore told us to do, which is to expand the limits of what is possible. And I just want you to know that I will try to do my part.

I want to thank you specifically for including my light bulb bill in this draft as a placeholder. As you well know, I am working with Mr. Upton to see if we can find standards that are mutually agreeable, and I appreciate the comments that Mr. Hastert just made about light bulb efficiency. We need to push the industry and recognize that many parts of the country and the world are banning the incandescent bulb because it is inefficient. That is not what my bill would do. My bill would push it to meet standards that fluorescent bulbs can already meet by 2012. So I think that at least is a good starting place.

I also want to commend you for the smart grid title of the bill. I think it is very important. An issue there that interests me a lot is adding some language on technology or demonstration projects for plug-in technology. As we heard from a witness a few weeks ago, at least in a State like California, there is the possibility that 70 percent of our cars could be retrofitted with plug-in hybrid technology. And that could use excess power from the grid at night, and a smart grid format could make that possible.

So there are many exciting options. Your bill is beginning to capture some of them, and as one member of your team, I hope we will all be successful and feel good about the result. Thank you, Mr. Chairman.

Mr. BOUCHER. Thank you very much, Ms. Harman. The gentleman from Texas, Mr. Hall, is recognized for 3 minutes. The gen-

tleman from Texas waives his opening statement, and the gentleman from Maine, Mr. Allen is recognized.

**OPENING STATEMENT OF HON. TOM ALLEN, A  
REPRESENTATIVE IN CONGRESS FROM THE STATE OF MAINE**

Mr. ALLEN. Mr. Chairman, thank you for holding this hearing and for your work on the legislation before us. I welcome the witnesses today. I am pleased that the draft legislation increases energy efficiency standards for appliances, buildings, and lighting, the proposals for which I have long advocated. I strongly support the portion of the proposal that would encourage the deployment of smart grid technology. Smart grid systems will make our electricity transmission network more energy efficient and allow consumers greater control of their energy use.

I also support the section of the draft that improves the Title XVII Loan Guarantee Program. This language has been worked out on a bipartisan basis and will significantly improve the program. However, I do have grave concerns about providing Federal support for the construction of coal-to-liquid plants. Making liquid fuel from coal is the least efficient way to utilize coal as an energy resource. Under the best case scenario, coal-to-liquid plants would be carbon neutral. At the worst case, coal-to-liquid plants would increase carbon emissions. Under no circumstances will we achieve rapid reductions. But there are to my knowledge no significant reductions in carbon emissions from vehicles that use fuel from coal.

I have another concern. Subsidizing coal-to-liquid plants may well undermine the development of biofuel technologies. We need to investigate whether or not the low cost of coal will cripple the development of a vibrant market for cellulosic ethanol which can reduce our use of oil and significantly reduce carbon dioxide emissions at the same time. The development of a global coal-to-liquids industry is truly troubling for the future of carbon emissions. I prefer plug-in hybrids. I think if we encourage plug-in hybrids, together with coal plants that deploy the latest technology for carbon capture and sequestration, plus state-of-the art technology to scrub the stacks with SO<sub>x</sub>, NO<sub>x</sub>, and mercury. We could achieve cleaner air, carbon dioxide reductions, and energy independence all at once. Coal-to-liquids takes us in the wrong direction. Further, any true energy independence factors should contain a renewable energy standard as well as language similar to Mr. Markey's CAFE proposal so we can get serious about making our automobiles more efficient.

Finally, Mr. Chairman, cleaner air and a comprehensive strategy to combat global climate change go hand in hand with energy independence but in my opinion must be part of this subcommittee's long-term strategy. I look forward to working with you to achieve this goal, and I yield back the balance of my time.

Mr. BOUCHER. Thank you very much, Mr. Allen. The gentleman from Kentucky, Mr. Whitfield is recognized for 3 minutes.

Mr. WHITFIELD. Mr. Chairman, I waive my opening statement.

Mr. BOUCHER. Thank you very much, Mr. Whitfield. The gentleman from Texas, Mr. Burgess, is recognized for 3 minutes. Mr. Burgess is not here at the moment. The gentleman from Texas, Mr. Gonzalez, is recognized for 3 minutes.

Mr. GONZALEZ. I waive.

Mr. BOUCHER. Mr. Gonzalez waives his opening statement. The gentleman from Washington State, Mr. Inslee, is recognized for 3 minutes.

Mr. INSLEE. Wait.

Mr. BOUCHER. The gentleman waives his opening statement.

Mr. INSLEE. I will be there in just a moment.

Mr. BOUCHER. He is sending me an e-mail.

**OPENING STATEMENT OF HON. JAY INSLEE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON**

Mr. INSLEE. Actually, what I was trying to do is first I wanted to express my appreciation to the Chair's handling of this in such an open and comprehensive manner, and I really do appreciate it.

What I was looking for is a release from Speaker Pelosi, who is addressing sort of our charge to our committee for this summer, and I want to make clear that it is my understanding our charge is to produce bills this summer that address not only energy independence for the United States but also global warming. And as soon as I get my BlackBerry in the right file, I can read that.

She made it very clear to us that we have a twin charge this summer, is to address the twin challenges of energy independence and global warming. And I think it is very important for us to make that point now because we cannot solve either unless we solve both.

I am just reading her language. She says, "Our committees are already working hard on hearings of legislation designed to meet our June timetable in taking crucial legislative steps to achieve energy independence and reduce activities that contribute to global warming." It would be a huge mistake for us to take a policy this summer that would harm or retard the ability to solve either one of those challenges. Many folks have talked about the coal-to-liquid issue. I want to suggest that despite the considered efforts to draft this bill to not shoot ourselves in the foot. In fact, coal-to-liquid would inevitably harm our ability to move forward on global warming. And the reason I think was made even clearer to me when I was talking to a gentleman who is involved in efforts to develop a cellulosic ethanol industry in the United States which would reduce CO<sup>2</sup> by over 50 percent compared to gasoline. Why would we ever establish an industry that would at best be equivalent to gasoline and essentially retard the development of an industry that can reduce CO<sup>2</sup> emissions by 50 percent? That is cellulosic ethanol.

And I want to address my colleagues from the farm community States that have a tremendous potential with cellulosic ethanol. My colleagues who want to develop the farm industry are going to be hurt if they get on this train of coal-to-liquid because coal-to-liquid would be a direct competitor to cellulosic ethanol. And those who want to see a future for rural America with biofuels are going to have to make a decision whether they want to shoot themselves in the foot and to develop that by trying to support these coal-to-liquids which is never going to be a significant reduction in CO<sup>2</sup>. I think that is important.

With that being said, I hope Mr. Chairman that we will address this summer some of the other issues that will address global

warming including a renewable portfolio standard, an advanced low-carbon fuel standard, incentives for plug-in hybrids, additional incentives for the solar to wave energy industry, healthcare for hybrids, and our green building standards which should include green building standards for residences as well as commercial construction.

So I will look forward to dealing with two problems this summer, not just one, Mr. Chairman. Thank you.

Mr. BOUCHER. Thank you, Mr. Inslee. And let me just note that the Speaker's office indicated some time ago that, to use the phrase of the Speaker's office, cap and trade would not be a part of the July agenda, meaning that a comprehensive greenhouse gas control program would be considered later, and we intend to take that charge seriously and produce it later this year in this committee.

The gentlelady from Wisconsin, Ms. Baldwin is recognized for 3 minutes.

**OPENING STATEMENT OF HON. TAMMY BALDWIN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WISCONSIN**

Ms. BALDWIN. Thank you, Mr. Chairman. I want to begin by thanking you for your dedication and your efforts in drafting the legislation that we have before us. There are many provisions in this text that will take significant steps towards reducing our Nation's energy consumption and putting us on a path to energy independence. For instance, I am excited about the potential provisions in the energy efficiency title that would require EPA to survey the quantity and quality of industrial waste energy, heat, from major industrial combustion sources. Estimates reveal that there is potentially as much as 60 to 90 gigawatts of heat that are currently wasted from industrial sources. This is heat that can be converted into energy, reducing the need for the equivalent of 60 to 90 nuclear power plants.

I understand that there are concerns about particular provisions in the industrial energy subtitle. I hope through continued discussions we can reach a satisfactory outcome that enables us to prevent waste, increase efficiency, and improve grid reliability.

I am also pleased that this bill takes significant steps towards facilitating smart grid technologies. Smart grid is technology of the future. It is the ability to manage peak loads and mitigate peak prices, and it provides consumers with the knowledge and the means to make sound energy choices. But for a smart grid to succeed, substantial investment is required to trigger nationwide deployment, and this bill provides the incentives to jumpstart such an investment.

Mr. Chairman, while I have expressed my pleasure with certain sections of the bill, in my opinion, it is not perfect. As mentioned in earlier hearings, I have a strong concern about coal-to-liquid projects. As we embrace the challenge of making our Nation energy independent, I believe we must do so in a manner that reduces our greenhouse gas emissions, in other words, a more ambitious standard than do no harm in this bill. And coal-to-liquid, while it may be a domestic fuel source, has greenhouse gas emissions that could be as much as twice as high as petroleum-based fuels.

I am hopeful that you will be open to working with Members so that this committee can pass legislation that addresses our concern about increasing energy independence while reducing greenhouse gas emissions.

Finally, Mr. Chairman, I want to highlight negotiations that are ongoing between industry and advocates. On the issue of stand-by power, each and every one of us has electronic equipment in our homes operating in standby mode, our televisions, or modems, battery chargers, any device with a continuous digital display. The problem is that for many of these devices, they draw as much energy in standby mode as they do when they are turned on. Recent estimates of standby use reveal that it accounts for as much as 10 percent of household power consumption. I will continue to work with energy efficiency advocates in affected industries on language to reduce standby power consumption, and I am hopeful that we will reach consensus that can be inserted into this bill. Thank you, Mr. Chairman.

Mr. BOUCHER. The gentleman from Utah, Mr. Matheson, is recognized for 3 minutes. The gentleman from Utah waives his statement. The gentleman from Maryland, Mr. Wynn, is recognized for 3 minutes.

**OPENING STATEMENT OF HON. ALBERT R. WYNN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND**

Mr. WYNN. Thank you very much, Mr. Chairman. I want to join my colleagues in expressing my appreciation for the work that you have done. You have worked very hard on this issue, and you have also been very thorough and comprehensive in holding a lengthy series of hearings.

I am generally pleased with the draft bill before us on a number of fronts. First in terms of energy efficiency, I think it is very important that we address this issue. It is pretty well-recognized that our footprint here in America in terms of energy consumption is much greater than that of Europe and suggest we can do better, and the provisions relating to appliances and lighting and better standards and more efficient standards I think make perfect sense. A lot of people have been saying we can't do better.

I want to note that in one of our hearings we heard from the National Conference of Mayors that this is not just a Federal responsibility, it is also a local responsibility and in keeping with their suggestions, I introduced a bill for energy independence, energy efficiency block grants which is basically Federal funds sent to the local level for projects at the local level to address energy efficiency, and I hope we can consider this as we move forward.

Second, I would note that the smart grid provisions are also very significant. A lot of people, quite frankly, have been waiting for us to get smart. This bill begins that process, particularly with respect to providing for matching grants for the investment costs associated with the initial smart grid cost. I think this is what we have to do, shift financial resources to areas that we want to promote. I think this makes perfect sense, also the promotion of demand response by consumers involving the American public in this process. Like many of my colleagues, I also support the title XVII adjust-

ment that would provide for full costs or loan guarantees for the full cost of new technologies. It provides a clarification that many people have been seeking with respect how we can financially support new technologies such as sequestration, such as hydrogen fuel cells. So I think that makes sense.

I would say in closing that I have concern as do many of my colleagues about coal-to-liquid, but if we can utilize sequestration to address this concern, it must be in the context of lowering emission levels below that which would come from burning petroleum. So I know that there has been discussion with do no harm, but I think we have to try to do better than do no harm with respect to coal if we are to consider coal-to-liquid in this plan. But ultimately, we have got a long way to go but I think we have made a good start; and I appreciate your leadership. Thank you.

Mr. BOUCHER. Thank you very much, Mr. Wynn. The gentleman from Arkansas, Mr. Ross, is recognized for 3 minutes.

**OPENING STATEMENT OF HON. MIKE ROSS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARKANSAS**

Mr. ROSS. Thank you, Chairman Boucher, for holding today's hearing and all the witnesses who have come before the subcommittee to testify. I want to first commend our chairman and subcommittee for all their hard work on these drafts. I especially want to thank the staff.

This legislation is a step in the right direction for increased energy efficiency and security for our Nation. I am particularly glad to see a title that addresses the Energy Policy Act of 2005 Loan Guarantee Program. This program can help finance projects involving, among other things, cellulosic ethanol, nuclear energy facilities and clean coal projects. I represent part of the delta region of this country, one of the poorest in America; and I believe we can see an economic revival in the delta as a result of investing in cellulosic ethanol.

Alternative and renewable fuels like cellulosic ethanol, biodiesel, and nuclear energy must be part of our Nation's comprehensive plan to combat climate change and increase our energy security. I believe that the loan guarantee programs in the 2005 EPACT can and should aid in that process. However, there have been numerous concerns about the DOE guidelines that cap loan guarantees at 80 percent for an eligible project, and I am pleased to see that this legislation addresses those concerns.

I am also pleased to see titles in this draft that would help to modernize America's electric transmission through a smart grid and a provision to assist coal-to-liquid projects. Let me be clear. We have over a 200-year supply of coal here in this country that can help us reduce our dependence on foreign oil. This is not the 1950s or 1960s. We can utilize 21st century technology and use this valuable natural resource to lessen our reliance on foreign oil, and we can do it utilizing 21st century technology in an environmentally friendly manner.

These sections I believe are extremely important components to putting our Nation on the path to energy independence. I am happy to see their inclusion in this draft.

Finally, I am pleased to see a strong energy efficiency section of the bill that addresses building and appliance efficiency standards in the section that reauthorizes funds through 2012 for LIHEAP, the Weatherization Assistance Program, and the State energy program. With energy and electricity use projected to grow over the next 20 years, enacting legislation that promotes energy efficiency in buildings and appliances is crucial to our country's energy independence and security. The future energy needs in this country must be met by a number of ways including nuclear, clean coal technology, coal-to-liquid technology, cellulosic ethanol, and other forms of alternative and renewable fuels.

Once again, I want to thank the chairman for his work on this legislation, and I look forward to hearing today's testimony and the benefits of this bill as well as possible ways to improve on these drafts, and I yield back the balance of my time.

Mr. BOUCHER. Well, thank you very much, Mr. Ross, and that completes the opening statements from members of the subcommittee, and I want to say welcome to our panel of witnesses who will address the first set of subjects that we are conducting our hearing regarding today, and I want to thank you for your patience. We have spent about an hour talking to you, and now we would like to give you an opportunity to talk to us.

Our first witness is Mr. David Rodgers, the Deputy Assistant Secretary for Energy Efficiency at the U.S. Department of Energy. Ms. Kateri Callahan is president of the Alliance to Save Energy, and Mr. Jay Birnbaum is the vice president and general counsel of the CURRENT Group which is deploying broadband over power line in a variety of locations around the Nation. And we welcome each of our witnesses on the first panel. Without objection, your prepared opening statement will be made a part of the record, and we would welcome your oral summary and would ask that you keep that to approximately 5 minutes.

Mr. Rodgers, we will be happy to hear first from you.

**STATEMENT OF DAVID RODGERS, DEPUTY ASSISTANT SECRETARY, ENERGY EFFICIENCY, U.S. DEPARTMENT OF ENERGY, WASHINGTON, DC**

Mr. RODGERS. Thank you, Mr. Chairman, members of the committee. Thank you for the opportunity to testify before you today on the energy efficiency discussion draft that was circulated for comment. While the administration has not had sufficient time to coordinate interagency views of the draft legislation, I am pleased to offer some preliminary comments. This means the administration has no formal position on the bill and may take a position at a later date based on the entirety of the legislative package.

In addition I would note the administration looks forward to working with this committee to craft an ambitious alternative fuel standard for the President's signature before the end of the summer driving season.

Discussion draft title I addresses a fundamental question: how can the United States find more ways to successfully promote energy efficiency? The draft legislation makes valuable contributions to our national discussion on energy efficiency addressing key areas of energy consumption, energy waste, energy training, and the resi-

dential, commercial, industrial, and public sectors. While there are many elements of the draft that appear consistent with the administration's energy policy objectives, some sections could benefit from further review, discussion, and modification. The Department looks forward to working with the committee to fine tune these proposals.

The discussion draft begins with the important area of energy conservation standards for appliances and equipment. Assistant Secretary Karsner testified earlier this month before this committee and discussed the schedule by which the Department has committed to clearing backlog of standards rulemaking and strategies for expediting the rulemaking process. This draft would augment the schedule and the process, and the Department supports many of the sections presented today and the tools they employ.

Secretary Bodman sent legislation to Congress in February requesting authorization that would significantly speed up the standards process and ultimately bring more efficient products to the market sooner. Our fast-track legislative proposal would streamline the rulemaking process, allow the Department to go to a direct final rule for certain products when a clear consensus for a standard exists among manufacturers, efficiency advocates, the Government, and other stakeholders. This process could shorten the time to a completed standard by nearly one-third. The Department looks forward to working with this committee to have that language included in this legislation.

Section 109 of the discussion draft would require DOE to periodically review and update all standards, an objective the DOE can support. However, the draft sets a schedule for the Department to evaluate the need for further updates to standards that would require rulemakings for some products to begin before the effective date of the existing standard. In those circumstances, DOE would not have updated information on the cost and other attributes of the energy efficient improvement options. We have similar concerns regarding the maximum 3-year delay between DOE issuance of a new standard and its effective date, and concerns about the immediate lifting of Federal preemption of State standards if one of the statutory deadlines was missed, regardless of cost. The end result of some of these provisions is likely to be a substantial increase and a burden on manufacturers and consumers.

The Department supports improving energy-efficient practices government-wide including in the construction, renovation, routine maintenance of Federal facilities. The discussion draft would direct the installation of energy efficient lighting fixtures and bulbs in GSA facilities. We are prepared to assist GSA and all Federal agencies with the latest developments in lighting technologies practices including providing energy cost-saving data. Our Federal Energy Management Program provides direct technical assistance and training to Federal agencies on lighting and other efficient technologies. Lighting improvements at Federal agencies are frequently performed as part of the Comprehensive Energy Audit and retrofit utilizing an energy saving performance contract or utility energy services contract as appropriate, allowing them to maximize energy savings at little or not cost to the government.

Moving on to the area of building codes, the framework and basic objectives of this subtitle in the discussion draft appear to be consistent with the goals of our building technology program. We have supported the building code and standards activity of ASHRAE and the IECC, the major voluntary code bodies. However, the Department has several specific concerns related to the flexibility and implementation and looks forward to further discussion with the committee.

Subtitle F would expand the types of projects that can be funded by Energy Saving Performance Contracts. Broadening the scope of this provision may serve as a significant incentive for Federal agencies to implement more diverse projects, demonstrate the significant role that private financing can play in Federal energy management projects. In addition, the Department supports permanent authorization of Energy Saving Performance Contracts which is not included in this discussion draft.

An essential complement to increased energy efficiency in industry, manufacturing, and the built environment is a national effort to reduce petroleum use, especially in the transportation sector. In his 2007 State of the Union Address, the President challenged our country to reduce gasoline consumption by 20 percent in 10 years, the Twenty in Ten plan. The President called for a robust alternative fuel standard requiring the equivalent of 35 billion gallons of renewable and alternative fuel in 2015. The Twenty in Ten plan holds a promise of diversifying the sources and the volumes of fuels we use, while reducing our vulnerabilities and dependence on oil. The administration looks forward to working with Congress on these initiatives.

Mr. Chairman, this concludes my prepared remarks. I will be pleased to answer any questions the committee members may have.

[The prepared statement of Mr. Rodgers follows:]

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STATEMENT OF

DAVID E. RODGERS

DEPUTY ASSISTANT SECRETARY FOR ENERGY EFFICIENCY

U.S. DEPARTMENT OF ENERGY

BEFORE THE

SUBCOMMITTEE ON ENERGY AND AIR QUALITY

COMMITTEE ON ENERGY AND COMMERCE

U.S. HOUSE OF REPRESENTATIVES

May 24, 2007

Mr. Chairman and members of the Committee, thank you for the opportunity to testify before you today on the energy efficiency Discussion Drafts you have circulated for comment. While the Administration has not had sufficient time to coordinate interagency views of the draft legislation, I am pleased to offer some preliminary comments. This means that the Administration has no formal position on the bill and may take a position at a later date based on the entirety of the legislative package. In addition, I would note that the Administration looks forward to working with this Committee to craft an ambitious Alternative Fuels Standard for the President's signature, before the end of the summer driving season.

Title I addresses a fundamental question: how can the United States find more ways to successfully promote energy efficiency? The draft legislation makes valuable contributions to our national discussion on energy efficiency, addressing key areas of energy consumption, energy waste, and energy training in the residential, commercial, industrial, and public sectors. While there are many elements of the Draft that appear consistent with the Administration's energy policy objectives, some sections could benefit from further review, discussion, and modification. The Department looks forward to working with the Committee to fine-tune these proposals.

The Discussion Draft begins with the important area of energy conservation standards for appliances and equipment in Subtitles A and B. Assistant Secretary Karsner testified earlier this month before this Committee and discussed the schedule by which the Department has committed to clearing the backlog of standards rulemakings, and

strategies for expediting the rulemaking process. This Draft would augment the schedule and process, and the Department supports many of the sections presented and the tools they employ. As a general matter, the Department encourages consensus standards that reflect a broad range of interests and are technologically feasible and economically justified. Several of the efficiency standards proposed in this draft legislation are consistent with the Department's activities, and reflect consensus among efficiency advocates and manufacturers. However, the schedule in the Discussion Draft for updating the refrigerator, refrigerator-freezer, and freezer standards does not permit sufficient time to address the complexity of these products without impacting the Department's current schedule of mandated rulemakings.

The Draft also provides some new authorities, such as the authorization for regional efficiency standards for space heating and cooling products, that may provide opportunities for additional energy savings if the potential Federal and state burdens related to monitoring and enforcement can be resolved. The Draft would also provide the authority to issue multiple performance or design standards for a single product, where such standards would be both technically feasible and economically justified.

The Discussion Draft includes some measures intended to expedite rulemakings but DOE questions whether they would achieve this objective. We welcome the flexibility of eliminating the requirement to publish an advance notice of proposed rulemaking which could help shorten the rulemaking process for some standards. However, the Committee should understand that we would use this flexibility sparingly because we believe that the

early stakeholder involvement in the standards development process ensured by advance notices can be very beneficial to the standards setting process and lead to better -- and sometimes even faster -- rulemakings. Elimination of the advanced notice makes the most sense as one means of expediting the adoption of consensus proposals

The Draft also provides a process for expediting rulemakings when there is a consensus among stakeholders, but may not give the Department adequate time to evaluate whether consensus agreements comply with established criteria for prescribing a standard or test procedure. Secretary Bodman sent legislation to Congress in February requesting authorization that would significantly speed up the standards process and ultimately bring more efficient products to market sooner. This fast-track legislative proposal would streamline the rulemaking process and allow DOE to go to a Direct Final Rule for certain products when a clear consensus for a standard exists among manufacturers, efficiency advocates, the government, and other stakeholders. This process could shorten the time to a completed standard by nearly one-third. The Department looks forward to working with this Committee to have that language included in this legislation.

Section 109 of the Discussion Draft would require DOE to periodically review and update all standards, an objective DOE can support. However, the Draft sets a schedule for DOE to evaluate the need for further updates to standards that would require rulemakings for some products to begin before the effective date of the existing standard. In those circumstances, DOE would not have updated information on the cost and other attributes of energy efficiency improvement options. DOE has similar concerns

regarding the maximum three year delay between DOE issuance of a new standard and its effective date, and concerns about the immediate lifting of Federal preemption of state standards if one of the statutory deadlines is missed, regardless of cause. The end result of these provisions is likely to be a substantial increase in the burden on manufacturers and consumers.

The Discussion Draft also addresses the critical area of lighting efficiency. The Department supports the desire to evaluate all types of lamps and all types of technologies that would enable steady improvements in lighting efficacy over time. We have significant concerns, however, regarding the language in section 121 of the Discussion Draft which could potentially ban the sale of all incandescent light bulbs without considering adverse impacts to consumers. The proposed language does not define the term "light bulb," thus raising potential conflicts with existing statutory requirements for lighting products and potentially conflicting with the proposed language on incandescent reflector lamps in section 122. Furthermore, setting in advance specific efficacy levels for 2016 and 2020, without provision for evaluating technological feasibility or cost, could lead to many adverse effects, including high costs for consumers and burdens on manufacturers. The Department looks forward to working with the Committee to promote rapid technological improvement in lighting technologies that would enable regular standards updating.

Section 122 of the Draft sets standards for incandescent reflector lamps that appear reasonable. DOE believes the addition of authority enabling the Department to review

and revise exemptions for this product (or comparable authority) would be beneficial. DOE is still evaluating the possible impacts of these provisions on existing rulemakings.

The Department supports improving energy efficiency government-wide, including in the construction, renovation, and routine maintenance of Federal facilities. The Discussion Draft would direct the installation of energy efficiency lighting fixtures and bulbs only in GSA facilities. DOE is prepared to assist GSA and other Federal agencies with the latest developments in lighting technologies and practices, including providing energy and cost-saving data. The Department, through its Federal Energy Management Program (FEMP), provides direct technical assistance and training to Federal agencies on lighting technologies. Lighting improvements at Federal agencies can be performed as part of a comprehensive energy audit and retrofit utilizing an Energy Savings Performance Contract or Utility Energy Services Contract, as appropriate. Such a comprehensive approach will ensure that agencies are able to accomplish the maximum energy savings and cost reductions possible and will be able to bundle innovative technologies and renewable energy options into retrofit projects with private financing.

Moving on to the area of building codes in Subtitle C, the framework and basic objectives of this section appear to be consistent with the goals of our Building Technologies Program. DOE has supported the building code and standard activities of ASHRAE and the IECC; however, DOE does have several specific concerns related to flexibility and implementation, and looks forward to further discussion with the Committee.

Turning to the industrial sector in Subtitle D, while the focus on industrial energy waste through combined heat and power (CHP) and the Clean Energy Application Centers is useful, the Discussion Draft covers only one small part of the wider industrial energy efficiency need and opportunity. DOE believes that industrial efficiency programs should be focused on the means to ensure that the goals of section 106 (c) of EPACT 2005 are met, which seeks to reduce industrial energy intensity by not less than 2.5 percent each year over the next decade.

The Discussion Draft addresses the important issue of energy efficiency and use in public institutions and Federal Government buildings in Subtitles E and F. Subtitle E, the “Sustainable Energy Institutional Infrastructure Act of 2007”, provides a commendable push to expand CHP, district heating, and other distributed generation technologies in the public sector. Providing more technical assistance in this area can make an important contribution to environmental, energy security, and economic competitiveness. The Department believes that the revolving fund program is not necessary in light of the ability of public institutions to attract private financing from energy services companies for many, if not all, of these applications.

Subtitle F would expand the types of projects that can be funded by Energy Savings Performance Contracts (ESPCs). Broadening the scope of this provision may serve as a significant incentive for agencies to implement more diverse projects, and demonstrate the significant role that ESPCs can play in financing Federal energy management projects. In addition, the Department supports permanent authorization of ESPCs, which

is not included in this Discussion Draft. The Draft's proposal in Subtitle C to implement a government-wide training program for educating Federal officials on the benefits of ESPCs will support ongoing efforts by the Department's Federal Energy Management Program in this area. To strengthen third-party financing and investment programs, DOE is currently working to transform the internal review process, simplify contracts, remove barriers and impediments that delay investments and service support, get more efficiency gains at an accelerated rate, and create replicable models across government.

An essential complement to increased energy efficiency in industry, manufacturing, and the built environment is a national effort to reduce petroleum use, especially in the transportation sector. In his 2007 State of the Union address, President Bush challenged our country to reduce gasoline consumption by 20 percent in the next 10 years, the "Twenty in Ten" plan. The President called for a robust Alternative Fuel Standard (AFS), requiring the equivalent of 35 billion gallons of renewable and alternative fuel in 2017. This goal is a significant expansion of the 7.5 billion gallon renewable fuel target now in law for 2012, under the Renewable Fuels Standard. Expanding the mandate established by the Energy Policy Act of 2005 (EPACT 2005) is expected to decrease projected gasoline use by 15 percent. Another five percent reduction in gasoline consumption can be achieved through the Administration's proposal to reform CAFE standards. The "Twenty in Ten" plan holds the promise of diversifying the sources, types, and volumes of fuels we use, while reducing our vulnerabilities and dependence on oil, and the Administration looks forward to working with Congress on these initiatives.

Only through transformational technological change can these goals be achieved, and we believe that the Administration's proposals provide the tools to achieve them.

The President's Advanced Energy Initiative, the "Twenty in Ten" goal, along with the full implementation of EPACT 2005, hold the promise of accelerating deployment of clean, renewable energy and energy efficiency technologies. To meet these challenges, cutting edge research and development must be supported by consistent, long-range policy actions, such as the proposal that the President articulated in the State of the Union, and legislative action such as the wide-ranging proposals for energy efficiency presented in this Discussion Draft. I appreciate the opportunity to present the Department of Energy's comments, and we look forward to working with the Committee as the legislation progresses, and on the many important energy challenges facing our Nation.

Mr. Chairman, again, I reiterate this is a very preliminary review, and the Administration's formal position on the entire energy package will depend on the extent to which the concerns that have been raised have been resolved. This concludes my prepared remarks, and I would be happy to answer any questions the Committee members may have.

Mr. BOUCHER. Thank you very much, Mr. Rodgers. Ms. Callahan, we will be happy to hear from you.

**STATEMENT OF KATERI CALLAHAN, PRESIDENT, ALLIANCE  
TO SAVE ENERGY, WASHINGTON, DC**

Ms. CALLAHAN. Thank you, Mr. Chairman, and I thank the members of the committee for the opportunity to appear before you today to discuss the energy efficiency provisions of the draft legislation.

As an organization that has dedicated itself over the last three decades to advancing energy efficiency, to tackle the country's linked problems of growing energy demand, increasing prices and volatility, and global warming, we think that what you are undertaking here today is very important. We stand ready to support your efforts in any way that we can.

I also would like to thank two of the members of the subcommittee in particular for their leadership on energy efficiency and their service as Alliance board members, and that is Mr. Hall from Texas and Mr. Markey from Massachusetts, and we have enjoyed their support.

Energy efficiency has proven to be our country's greatest energy resource over the past 30 years, and that has happened from good, strong public policies like you are looking at today, appliance standards, building codes, better Federal energy management. Energy efficiency is currently contributing more to meeting our country's energy demand than, pardon me, Mr. Chairman, but even than King Coal. Our studies at the Alliance indicate that if we hadn't taken all the efficiency measures that we have over the past 30 years, we would need 40 percent more energy today to power our economy than we are currently using. So we have made good progress and we all should be proud of that. However, there is much more to do.

The committee's draft continues this important tradition, and while we support the efficiency provisions that are in the draft currently, we also urge the committee to consider including additional measure that can deliver even greater energy savings. I am only going to highlight a couple of the key provisions because as the chairman indicated, there are 29 efficiency provisions. So I will highlight a couple that we consider most important and suggest a few additions. All of these, along with a number of others, are included in detail in my written testimony.

First, we support the many strong provisions on appliance standards in the bill. Appliance standards has proven to be one of the most effective efficiency programs this country has undertaken. Through the appliance standards we have in place today, by the year 2010, we estimate that we will save 7 percent of U.S. electricity use, and greenhouse gas emissions will be 65 million metric tons lower. And that also translates into savings for American consumers of \$234 billion in avoided energy costs. New performance standards for general service light bulbs that many of the Members have mentioned today could be the single most important energy savings measure in the bill. We estimate that these technology-neutral standards could save as much as 65 billion kilowatt hours of electricity. That is the equivalent output of 80 coal-fired power

plants. It represents \$18 billion in avoided energy costs and 158 million tons of avoided CO<sup>2</sup> emissions annually.

Mr. Chairman, many have mentioned that there is a coalition working on negotiating consensus standards. The Alliance is pleased to be hosting those, and I am actually leaving here today to conclude we hope successfully the standards. We would suggest and ask that the committee consider these negotiated standards if we are able to deliver them as a substitute for the language that is currently in the draft.

Second, we strongly support the innovative building code provisions that are included in the draft. About 40 percent of all the energy we consume in the United States and two-thirds of the electricity is gobbled up by the building sector, and the potential for energy savings here is enormous. Making efficiency improvements at the time of construction is by far the most cost-effective way to lock in energy savings for the 30 to 50 to even longer life buildings. Progressive building efficiency codes like you have articulated in this draft ensure that these efficiency measures are taken. And third, while we strongly support the provisions of the bill designed to reduce energy use by the Federal Government, we ask the committee to consider additional provisions that will create a new paradigm and a new structure to ensure that Federal agencies are aggressive in pursuing efficiency upgrades. The bill that was mentioned by Mr. Markey that he is going to introduce today and was introduced in the Senate by our chairman, Senator Mark Pryor from Arkansas, is one that we would commend to this committee to consider including in the bill.

And finally, we ask the committee to consider including provisions that foster utility efficiency programs which are a proven and cost-effective means of delivering energy efficiency. The Senate energy efficiency bill requires State utility commissions to at least consider energy efficiency as a resource and to look at structuring rates as to not encourage greater sales of electricity. We support these provisions and ask the committee to consider them. We also support creation of a Federal energy efficiency resource standard that would require utilities to implement programs that result in a specified amount of electricity or natural gas savings. Like a renewable portfolio standard, energy efficiency resource standard, or EERS as they are called, represent a flexible or performance-based and market-based regulatory mechanism that can ensure that energy efficiency is treated by utilities as other fuel supply resources.

In conclusion, I reiterate our offer to work with the committee as you develop this important legislation that will reduce energy waste and price volatility and will address global warming in a meaningful way. Through energy efficiency, we believe that you can transform our current energy crisis into economic opportunities and a win-win for both Americans and our environment.

[The prepared statement of Ms. Callahan follows:]

**Testimony of Kateri Callahan, President  
Alliance to Save Energy**

**House Committee on Energy and Commerce,  
Subcommittee on Energy and Air Quality  
May 24, 2007**

**Energy Efficiency Committee Discussion Draft**

**Introduction**

The Alliance to Save Energy is a bipartisan, nonprofit coalition of more than 120 business, government, environmental and consumer leaders. The Alliance's mission is to promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security. The Alliance, founded in 1977 by Senators Charles Percy and Hubert Humphrey, currently enjoys the leadership of Senator Mark Pryor as Chairman; Duke Energy CEO Jim Rogers as Co-Chairman; and Representatives Ralph Hall, Ed Markey and Zach Wamp, along with Senators Jeff Bingaman, Larry Craig, Susan Collins and Byron Dorgan as its Vice-Chairs. Attached to this testimony are lists of the Alliance's Board of Directors and its Associate members.

The Alliance applauds the committee on its draft provisions on building and industrial energy efficiency and is pleased to offer these detailed comments.

**The Potential Impact of Energy Efficiency in Buildings**

Natural gas prices have doubled in the last few years, and electricity prices also reached all-time highs. Including gasoline as well, recent energy price increases cost American families and businesses over \$300 billion each year. The president recognized energy security as a major issue in the State of the Union message. And the world's scientists just reaffirmed the urgent need to reduce global warming. These problems are not going to go away—electricity use in the United States is projected to grow by half by 2030. Such growth will lead to higher prices, greater volatility, and increasing dependence on foreign natural gas as well as foreign oil.

Building energy use is a major factor in these linked problems of energy prices, energy security, and global warming, and must be a major part of their solution. About 40 percent of all energy used in the United States, and more than two-thirds of electricity, goes to heat, cool, and power buildings. Building energy is also responsible for about 40 percent of U.S. carbon dioxide emissions. Just over half of that is for homes, the rest for a wide variety of commercial buildings.

Great strides have been made in improving the efficiency of appliances, heating and cooling systems, equipment, and the building envelope (walls, windows, doors, and roofs). At the same time the growing size of homes and appliances, and the growth in electronic equipment have overwhelmed the efficiency savings.

An even greater savings potential remains—a recent study by the McKinsey Global Institute found that measures that pay for themselves in ten years would save 36 percent of energy use for homes and 19 percent of energy used for commercial buildings. A 2000 study by several national labs estimated that energy-efficiency policies and programs could cost-effectively reduce U.S. energy use in residential buildings by 20 percent and in commercial buildings by 18 percent over a 20-year span, essentially reversing the growth they projected in building energy use. The American Institute of Architects has called for reducing fossil fuel use in new and renovated buildings by 60 percent by 2010 and by 100 percent by 2030.

A combination of several policies and programs have made a real impact on saving energy in buildings, including appliance standards, building energy codes, labeling programs, tax incentives, and research and development of new technologies and utility energy-efficiency programs.

### **Appliance Energy-Efficiency Standards**

Appliance standards have been one of the most effective energy-efficiency programs. Standards in place today are expected to save 7 percent of U.S. electricity use and reduce greenhouse gas emissions by 65 million metric tons by 2010, and are expected to save consumers \$234 billion (this is *net* savings—after repaying any increased first-cost for more efficient appliances). Energy efficiency advocates and states have identified at least 15 appliance types with significant energy savings opportunities but no federal efficiency standards at present. Adopting efficiency standards for these 15 products alone could save 52 TWh of electricity and 340 billion cubic feet of natural gas annually by 2020, and save consumers \$54 billion in energy costs between now and 2030. Even more could be saved by updating existing federal standards.

In recent years the Alliance and other energy-efficiency advocates have focused much of our attention on lengthy delays and lack of progress at DOE in setting required appliance standards. Due to a provision in EPA 2005—and a lawsuit—last year DOE set an explicit schedule for appliance standard rulemakings, which was later adopted in a court order. So far, they have met that schedule. However, the two new DOE-proposed standards (on distribution transformers and residential furnaces) were far weaker than we and many others believe is required by federal law, justified by DOE's own data and analysis, and needed in order to meet the energy needs of our nation.

We urge you to monitor carefully both DOE's adherence to its regulatory schedule and the actual outcome of the rulemaking process, and we thank you for holding a hearing on the program recently. We also support the strong package of appliance standards provisions you have included in the discussion draft, with some modifications.

***Consensus standards (Sec. 101, 102, 103, 122):*** First, since EPA 2005 we have reached additional consensus agreements with product manufacturers on new and updated standards

for clothes washers, dishwashers, dehumidifiers, boilers, incandescent reflector lamps, and electric motors. These standards can be adopted more quickly by Congress and with less burden on the DOE program. We do not believe these provisions are controversial, but they are important. Based on estimates by the Appliance Standards Awareness Project (ASAP), these standards should save (after all appliances have been replaced): 14 billion kilowatt-hours of electricity each year, 170 million therms of natural gas a year, 560 million gallons of water a day, and \$8 billion in reduced energy bills.

***New light bulb standard (Sec. 121):*** A new performance standard for general service light bulbs could be the most important, single energy-efficiency measure in this bill or any bill in recent years. The Alliance is currently hosting intensive negotiations with other efficiency advocates and manufacturers to come to agreement on a series of performance standards for light bulbs that would be technology-neutral, but would in effect bar the incandescent lights we have used for the past century in favor of more efficient new halogen, fluorescent, and eventually light-emitting diode technologies. We estimate such standards could save 65 billion kilowatt-hours of electricity each year or the equivalent of 80 coal-fired power plants; \$18 billion in avoided energy costs; and would avoid the release of 158 million tons of CO<sub>2</sub> and 5,700 tons of airborne mercury. We hope to have a joint proposal soon, and appreciate the committee's support in reaching and then enacting such an agreement as part of the energy package you are crafting currently.

***New rulemakings to set standards (Sec. 101, 111):*** DOE has limited its schedule for setting appliance standards to congressionally mandated rulemakings with a date certain. This narrow approach has delayed consideration of some standards with the greatest potential energy savings. For example, DOE has identified furnace fans and residential refrigerators as two product standards that offer the potential for very large energy savings, but the agency has yet to even schedule these rulemakings. As part of the consensus agreement on home appliances, Sec. 101 would require an update to the refrigerator standard by December 31, 2010, as well as additional updates to the dishwasher and clothes washer standards. Sec. 111 would require a new standard on furnace fans by July 1, 2013. ASAP estimates that a new refrigerator standard could save 14-23 billion kilowatt-hours of electricity each year, and a furnace fan standard could save another 13 billion kilowatt-hours. We strongly support these rulemakings.

***Periodic review of appliance standards and test procedures (Sec. 109, 110):*** At present, there is no requirement for DOE to review and update all existing standards and test procedures regularly. The existing law does require a limited number of reviews for some product standards, but subsequent reviews are discretionary. And, DOE test methods for a number of products are seriously lagging the pace of technology development, thus preventing effective standards for those products (examples include tankless water heaters, products that use standby power even when turned "off," and many appliances with advanced electronic controls).

The Alliance strongly supports the provision to establish a general requirement for periodic review of all standards every 3 to 5 years, with an additional 3 years to set the standard if an update is needed, and for periodic review of all test procedures every 7 years. This provision also would set deadlines for DOE's review of updates to certain commercial products in the

ASHRAE national model commercial building code, and it would harmonize the delay before standards become effective to be the greater of 3 years after the final rule or 5 years after the previous standard. Because DOE has failed to complete required rulemakings in a timely fashion, a backstop is needed. If DOE failed to complete the required review of standards, this provision would allow states to act to limit the demands on their energy systems from those products.

***Regional standards (Sec. 104):*** Efficiency standards for some climate-sensitive products such as furnaces, boilers, air conditioners, and heat pumps should be allowed to vary by region, since regional weather conditions can significantly affect the feasibility or cost-effectiveness of a given technology or efficiency measure. The markets for these products already vary by region, and building codes, as well as national standards for manufactured housing, are regional for the same reasons. The Alliance strongly supports this provision, which would clarify DOE's authority to allow standards for these products to vary in up to three regions. We would like to work with the committee to ensure that the enforcement provisions are both workable and effective, with appropriate measures at each stage of the chain of manufacture, distribution, sale, and installation. Just a stronger residential furnace standard in the North, made possible by this provision, would save 1.7 billion therms of natural gas each year when fully implemented, enough to heat about 3.1 million typical homes, according to the American Council for an Energy-Efficient Economy. Consumers would save about \$8 billion over about 20 years.

***Multiple standards for a product (Sec. 108):*** DOE has taken a very narrow view of the statutory language regarding standards it can set. Congress should clarify that DOE may include two or more specifications for different features of the product that all contribute to energy efficiency. This provision would allow this for products with more than one energy-using feature, such as a furnace with a heater and a fan. However, sometimes multiple performance standards or design requirements are needed for other products as well. One example is the authority for DOE to set standards for air conditioners in terms of both average efficiency, which reduces consumer bills, and performance during the hottest summer days, which provides added benefit by easing the strain on electric utility systems during peak demand periods. A second example is the new dishwasher and clothes washer standards, which set efficiency requirements for both direct electricity use and consumption of (heated) water.

***Expediting standards rulemakings (Sec. 105, 106):*** DOE has had trouble issuing dozens of appliance standards in a timely fashion, as detailed in a recent Government Accountability Office report requested by the Chairman and other committee members. It is not clear that statutory requirements are the main part of the problem, but the Alliance would support simplifying the process if that can be done without impacting the quality and transparency of the standards. Sec. 105 would remove the requirement for an Advanced Notice of Proposed Rulemaking. As long as there is continued opportunity for public input in the analysis, the formal rulemaking process may not be the best approach to gathering that input. Sec. 106 would set time limits and remove certain requirements for implementing a consensus agreement, in order to speed adoption of non-controversial standards.

**Technical Corrections (Sec. 107, 181):** DOE interpreted an amendment in EAct 2005 to prevent the agency from adopting new ASHRAE standards for small commercial air conditioners (which were not covered in the standard set in EAct 2005). This is a result no one intended. Sec. 109 would correct the language in modifying the procedure; Sec. 107 is intended to set the recent ASHRAE standard into law. However, corrections are needed to move up the effective date and incorporate standards updates for certain other air conditioners that were, presumably inadvertently, rolled back to older statutory language. In addition, there is not agreement on adopting the ASHRAE standards for certain categories of smaller air conditioners; for those products DOE should be instructed to carry out the process of considering whether to adopt the ASHRAE standard or a higher standard. Sec. 181 corrects language in EAct 2005 implementing an agreement on a standard for ceiling fans.

**Clarification of preemption:** Finally, Congress should make it clear that federal law does not preempt states from setting their own appliance standards in the absence of a federal standard in place. This principle has generally been upheld in interpretation of the federal appliance standards laws, but in some cases it has been argued that the mere authority for DOE to set standards should preempt the states, even if DOE fails to exercise that authority. If DOE fails to act, or if it establishes a “no standard” federal standard, a state should be able to adopt its own energy-saving standards for that product.

### **Building Energy Codes**

One of the most important opportunities for reducing energy use and costs is by designing and constructing a new building to be energy-efficient from the start. Every new building that is not efficient represents a lost opportunity—one that will likely be with us for another 30-50 years or longer, a time frame that will almost certainly see much higher prices and much more intense concern over energy supplies, air pollution, and greenhouse gas emissions.

There is cause for optimism in the growing interest shown by builders and developers in green buildings and rating systems such as the U.S. Green Building Council’s LEED; the bold new policy commitments to energy efficiency targets by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the American Institute of Architects, and the U.S. Conference of Mayors; and the federal government’s own commitment (in EAct 2005) to design new federal buildings to be 30% more efficient than current practice. But a great deal of work remains to be done. Congress can support and encourage these broader initiatives with specific actions that take best advantage of federal leverage in building codes and federal financing for home mortgages.

**National targets for building code improvements (Sec. 304):** Present law requires that DOE review any updates in residential or commercial model building codes, to determine if the revision improves energy efficiency. Following that determination, each state is required to review and, for commercial buildings, update its own building code to meet or exceed the model code. However, there is no penalty for a state that fails to comply.

Sec. 304 would make two changes to improve building codes within the existing process. First, Congress and DOE would set goals for continuous improvement of the model building codes. Rather than wait passively for action by others, DOE should instead take the initiative

to engage with organizations such as ASHRAE and the International Code Council to advance the model codes steadily toward specific targets: 30 percent efficiency improvement by 2010, for both residential and commercial model codes, and at least 50 percent improvement by 2020. ASHRAE has already adopted a similar goal, but there is no similar urgency for residential buildings, and it is hard to move diverse, consensus-based organizations to take ambitious action. DOE support is needed both for technical underpinnings and to represent the national interest in reduced energy use and greenhouse gas emissions.

Second, the provision would encourage state action in updating and achieving full compliance with the energy codes. States should be required to adopt strong codes for residential as well as commercial buildings. And they should be required to achieve strong compliance with their codes. In a recent review of residential energy code compliance studies from a dozen states, compliance rates were found to vary widely, but the average was far below 100 percent, and typically closer to 40 to 60 percent. A number of studies have pointed to the constraints, including staff time and expertise, facing many local code enforcement agencies in making sure that energy code requirements are met, both at the design and permit stage, and in verifying actual construction and installation practices on-site.

Congressional oversight would be helpful here as well. The code compliance program authorized under Section 128 of EPCA 2005 is a small but important step toward providing an incentive for states to adopt and enforce up-to-date energy codes; it should be fully funded. In addition, DOE has not made the required determination of energy savings on any recent code updates: the 2003, 2004, or 2006 residential IECC or the 2001 or 2004 ASHRAE commercial standard.

***Allow performance codes to exceed minimum appliance standards (Sec. 133):*** For appliances and equipment with a federal efficiency standard, state standards are generally preempted, including in building energy codes. This provision would allow states with performance-based building efficiency codes to assume appliance efficiency levels higher than the federal standard in setting the required overall efficiency. It would not set a higher standard for these products, even in new buildings, as builders could choose to make efficiency improvements elsewhere in the building, such as adding more insulation, in order to achieve the energy savings while installing appliances that only meet the federal standard. The Alliance supports this provision.

***Update manufactured housing standard (Sec. 132):*** About one in 12 new homes in the United States is a manufactured housing unit (147,000 in 2005). Because these homes are factory-produced with many standardized components, manufactured housing units should be inherently more energy-efficient than their site-built counterparts. For example, it is much easier and more cost-effective to achieve an air-tight duct system in the factory than on a construction site. Instead, manufactured homes are generally much less efficient than site-built homes, due to poorly insulated walls and roof, single-pane windows, and inefficient heating and cooling systems. A 2004 Pacific Northwest National Laboratory report found that improving the energy efficiency of a manufactured home, not even to the current IECC,

would save an average of \$150-\$180 per year. The initial cost would be about \$1000 to \$1500.

Congress directed that the manufactured housing efficiency standards be based on life-cycle cost analysis, but HUD, which is responsible for adopting the Manufactured Housing Construction and Safety Standards (MHCSS), has not updated these standards to keep up with changing energy prices and advances in energy-saving materials and equipment. As a result, the “HUD-code” standards are now well below the comparable energy efficiency code requirements for new site-built homes. For example, a new manufactured home built for Minnesota today is required to have only as much wall insulation as a site-built home in Miami—and the ceiling and floor insulation levels required by HUD code for that Minnesota manufactured home wouldn’t even meet the site-built model code requirements for Miami.

Many of these manufactured units are sold to low and moderate income families – those who can least afford to pay the rising utility bills for gas, electricity, and in some cases propane heating. And often taxpayers end up subsidizing the ongoing costs to operate these inefficient housing units through the Low-Income Home Energy Assistance Program (LIHEAP) or through the Low-Income Weatherization Assistance Program, which helps pay for energy-saving retrofits. It is far easier and cheaper to make these manufactured homes more efficient in the first place.

The Alliance supports requiring the standard for manufactured housing to be at least as stringent as the current model residential energy code, the International Energy Conservation Code (IECC).

***New federally assisted housing:*** To qualify for a federally insured mortgage, a new home should be required to meet or exceed the efficiency levels of the model energy code (currently the 2006 IECC). This will assure that federal taxpayer funds are not used to underwrite inefficient new homes with higher utility bills – a different kind of hidden, long-term “mortgage.” Updated standards would affect a lot of housing: a 2003 U.S. Census Bureau survey found, for homes constructed in the previous four years, 486,000 FHA mortgages, 225,000 VA mortgages, 29,000 USDA mortgages, and 38,000 public housing units.

Current law requires HUD and the Department of Agriculture (USDA) to set energy-efficiency standards for:

- Public and assisted housing,
- New homes (other than manufactured homes) with mortgages insured by the Veterans Administration and Federal Housing Administration, and
- New single-family homes with mortgages insured, guaranteed or made by USDA.

However, the agencies have never changed the standard from the legislated backstop of the 1992 Model Energy Code (the predecessor to the IECC) and ASHRAE Standard 90.1-1989. EPAAct 2005 only required public and assisted housing with HOPE VI grants to meet the 2003 IECC. The Alliance supports a provision, as in the Senate committee energy bill, to update the criteria for all this housing to the current IECC code and ASHRAE standard.

### **Increasing Energy Efficiency in Federal Facilities**

The United States federal government is the single largest consumer, and the single largest waster, of energy in the world. In 2005 the federal government overall used 1.6 quadrillion Btu of “primary” energy (including the fuel used to make the electricity it consumed), or 1.6 percent of total energy use in the United States. Taxpayers in this country paid \$14.5 billion for that energy. Almost half of that energy, and more than half of the cost, was for vehicles and equipment, primarily for military planes, ships, and land vehicles. The rest, 0.9 quadrillion Btu at a cost of \$5.6 billion, was for heating, cooling, and powering more than 500,000 federal buildings around the country.

Repeated efforts over the last two decades have resulted in dramatic energy and cost savings, but large cost-effective savings remain available. Overall federal primary energy use decreased by 13 percent from 1985 to 2005, and the federal energy bill decreased by 25 percent in real terms, even after the 27 percent jump in fuel prices in the United States in 2005. Federal “standard” buildings reduced their primary energy intensity by about 13 percent, while “site” energy declined by 30 percent (“Standard” buildings are those not exempted due to industrial uses or national security needs; “energy intensity” is energy use per square foot of building space; “site” energy is measured at the point of use, excluding electricity system losses). Congress and the president have set even more aggressive targets for future savings that could yield well over \$1 billion in energy cost savings each year from federal buildings alone.

But these savings will not occur without greater funding and oversight. In addition to greater appropriations, the Alliance supports increased use of Energy Savings Performance Contracts and a new focus on energy efficiency throughout federal buildings.

***Energy Savings Performance Contracts (Sec. 134, 161-163):*** The discussion draft takes a number of measures to enable greater use of Energy Savings Performance Contracts (ESPCs), in which Energy Service Companies (ESCOs) finance and help implement energy-saving projects and are paid out of the resulting stream of energy bill savings. Sec. 134 sets up a program to train federal contracting personnel in the use of ESPCs. This could be useful if there are additional appropriated funds to pay for it. Sec. 161 modifies the authorization for ESPCs to clarify that the savings can include use of renewable energy and cogeneration, the sale of excess electricity and heat, and water savings. Sec. 162 clarifies that appropriated funds and financing through ESPCs can be used to fund the same project.

The Alliance also supports additional modifications to ESPC authority to remove a number of arbitrary impediments. First, the authority for federal agencies to enter into ESPCs should be permanently extended, to avoid the problems that have occurred with the lapse of authority in 2003-2004. Second, Congress should end any self-imposed agency caps on the duration of ESPC contracts below the statutory limit of 25 years and on total obligations under ESPCs. Agencies should, of course, be able to choose whether to use ESPCs and to negotiate contracts with shorter duration, but they should not impose arbitrary limits.

***Implement all cost-effective efficiency improvements in existing buildings:*** The Alliance believes that a new paradigm and a new structure are needed to ensure that all large federal buildings are made energy-efficient, that improvements are not made just when

appropriations happen to be available or an energy manager happens to be a champion of efficiency. Thus we recommend a package of policies that have been introduced (along with the changes to ESPCs above) in a new bill by Senator Pryor, S. 1434:

- All large federal buildings and facilities should conduct comprehensive energy and water savings evaluations (“energy audits”) to identify and prioritize all economic opportunities for investments to reduce energy and water use. These evaluations should consider both capital investments, such as a new boiler or chiller, and operational improvements, such as checking and adjusting lighting or mechanical system controls.
- Agencies should implement all measures identified in the energy and water evaluations that have a simple payback of fifteen years or less. The calculation of cost savings should consider not only energy and water costs but also reduced costs of building operations, maintenance, repair, and equipment replacement.
- It is critical that the agencies not only make the capital investments but also make sure that the measures work, and keep on working. Start-up commissioning, and periodic re-commissioning, are an essential part of all measures to ensure that they work as intended – followed by effective operation, maintenance, and repair as well as measurement and evaluation of savings.
- Sustained oversight is needed to ensure that every agency is implementing these measures. While congressional action is important, the first level of oversight should be agency self-certification through an open web-based tracking system, along with benchmarking of building energy and water use, and reviews in the agency energy scorecards that the Office of Management and Budget already prepares.
- Both the energy-savings evaluations and the measures themselves should be funded through a combination of increased appropriations and private financing through ESPCs and UESCs.

### **Distributed Generation and District Energy**

Energy efficiency can be promoted not just through reduction of end-use consumption but also through efficient generation of electricity and production of heat through combined heat and power systems, use of waste energy, district energy systems, and related technologies. *Subtitles D and E* set up information and training programs and authorize incentives and a revolving loan fund to support these clean energy systems. If implemented and funded, these provisions could result in significant energy savings.

### **Utility Energy-Efficiency Programs**

Utility energy-efficiency programs have been one of the most effective approaches to improve building energy efficiency. Why should utilities reduce their sales by helping their customers reduce energy consumption? Many utilities have found that helping their customers to save a kilowatt-hour of electricity is cheaper and easier than generating and delivering that kilowatt-hour. Energy efficiency is a key energy resource.

These demand-side management (DSM) programs use measures such as rebates for efficient appliances, commercial lighting retrofits, and energy audits to help their customers use less energy. The cost to the utility for the energy savings is often around 2-4 cents per kilowatt-hour (kWh), much less than the cost of generating and delivering electricity. Such efficiency investments save consumers money, increase consumer comfort, reduce air pollution and global warming, enhance economic competitiveness, and promote energy reliability and security.

Over the last two decades, states worked with regulated utilities to avoid the need for about one hundred 300-Megawatt (MW) power plants. However, utility spending on DSM programs nationwide was cut almost in half as the electricity industry was partially deregulated in the late 1990's. In the last couple years there has been a resurgence of interest in electricity and natural gas energy-efficiency programs, with new programs in states such as Georgia and Arkansas, and added funding in leaders like California and Vermont. Some states have also chosen to run similar demand reduction programs themselves.

As a focus for federal policy, the energy efficiency resource has several advantages:

- It is readily available in all parts of the nation,
- It is available for direct natural gas use as well as for electricity,
- It is cost-effective today, and
- The potential savings are enormous.

Policies that foster these state and utility programs, including goals and performance requirements, dedicated funding, consideration of the efficiency resource in utility planning, and rate structures that reward efficiency, have mostly been set at a state level. However, there are some things the federal government should do. Currently there are no relevant provisions in the discussion draft.

***State consideration of energy efficiency resource:*** Congress recognized the potential of utility energy-efficiency programs, and the need for a federal role, in EPAct 2005. Section 139 required a report, which was recently released. Section 140 authorized \$5 million a year for five years to create state pilot programs designed to achieve 0.75% annual reductions in electricity and natural gas use. In the Senate version of EPAct, Section 141 would have required state public utility commissions to consider policies to promote utility energy-efficiency programs. The new Senate energy bill includes a similar "mandate to consider" energy efficiency as a resource and rate structures that do not reward greater sales of electricity. The Alliance supports including such a provision.

***Energy efficiency resource standard:*** An even more effective approach would be a federal performance standard for electric and natural gas energy-efficiency programs. Several states are already developing innovative policies to set performance standards for utility energy-efficiency programs alongside standards for generation from renewable sources. Like a renewable electricity standard (RES), an energy efficiency resource standard (EERS) is a flexible performance-based and market-based regulatory mechanism to promote use of cost-effective energy efficiency as an energy resource. An EERS requires utilities to implement energy-efficiency programs sufficient to save a specified amount of electricity or natural gas,

such as 0.75 percent of the previous year's sales. Utilities can meet the requirement by implementing their own programs, hiring energy service companies or other contractors, or perhaps paying other utilities to achieve the savings by buying credits. The program savings are independently verified. Usually, the costs of the energy-efficiency programs must be recovered from energy customers through utility rates, but the savings from avoided energy supply are greater than the efficiency cost.

This new proposal may not be fully ripe for inclusion in the committee bill, but the Alliance urges the committee to work with the many stakeholders in developing such a standard, and, if considering a renewable generation standard, to consider incorporating or adding such a standard for the efficiency resource as well.

### **Energy Information Administration**

*Energy information (Sec. 201):* The Energy Information Administration (EIA) services are critical not just on energy supply and energy markets but also in understanding and addressing energy consumption and energy efficiency. EIA Energy Consumption Surveys provide unique and invaluable data to policy makers, industry, and researchers. Because of funding cuts, the residential transportation survey was last conducted in 1994, and the Residential, Manufacturing, and Commercial Buildings Energy Consumption Surveys (RECS, MECS, and CBECS) are conducted every four years rather than every three years, as required by the Energy Policy Act of 1992, and with reduced questions. The Alliance urges that this provision be modified to clearly include energy consumption and energy efficiency in its scope, in order to better assist utilization of the efficiency resource.

### **Conclusion**

The Energy Policy Act of 2005 included some important measures to reduce building energy use, including new appliance standards and tax incentives. But, while helpful, they were not aggressive enough to address the critical energy issues facing our nation. In the last year and a half, concern about the linked issues of energy prices, energy security, and global warming has only grown. There are measures we could and should take, such as consumer education, that would have an immediate impact. But polls also show that a large majority of Americans are rightly more concerned that Congress find long-term energy solutions than that Congress quickly address current prices. There is an opportunity now to enact significant energy-efficiency measures that will benefit the economy, the environment, and energy security for years to come. The committee discussion draft takes major steps in that direction, especially on appliance efficiency standards and building energy codes. The Alliance thanks you for your commitment, and urges you to continue to seize the opportunity to reduce energy waste, supply shortages, price volatility, pollution, and global warming, to transform energy crises into economic opportunities.

Mr. BOUCHER. Thank you very much, Ms. Callahan. Mr. Birnbaum.

**STATEMENT OF JAY BIRNBAUM, VICE PRESIDENT AND GENERAL COUNSEL, CURRENT GROUP, LLC, GERMANTOWN, MD**

Mr. BIRNBAUM. Thank you, Mr. Chairman. Good morning. Good to see you again. I would like to thank the committee for the opportunity to speak this morning about the smart grid initiatives. I would like to commend the subcommittee for actually elevating smart grid to the national debate. CURRENT has been doing this with electric utilities for several years now. We believe that the development of a smart grid is vital for national security, economic stability and development, as well as energy policy in general.

The draft appropriately focuses on utilities using advanced technologies to improve reliability, security, and efficiency of their local distribution grids. And we would submit that it actually is a Federal responsibility to improve the reliability and security of the grids given the potential impact on homeland security and our economy. We support a number of the provisions in the bill which I will discuss.

Although well-intended, I do believe there are some provisions that actually would have the unintended consequence of delaying smart grid deployments, and I would like to discuss those as well.

I think it is first important to understand that smart grid exists today. This is a technology that we are deploying presently in the State of Texas as well as elsewhere. Mr. Chairman, I know you have been to our facility we have just outside the Capital Beltway where we demonstrate the smart grid capabilities. What we are doing in Texas will be a deployment covering 2 million homes and businesses with full smart grid functionality. So this is not a technology of tomorrow that needs study or demonstration projects. We can actually demonstrate whether it is hybrid powered vehicles or any other applications, on a system we are building today.

What is needed is to remove the regulatory constraints that utility companies have and the disincentives they have for deploying smart grid technologies and to create some affirmative incentives, which the bill does address, for rapid action.

First I would like to just clarify what we mean at CURRENT by smart grid. We are referring to a high-speed, two-way communication system that has sensors that provide real-time monitoring, diagnostics, and control for electric distribution companies so they can manage and monitor their substations, transformers, all the crucial points between the substation and our homes and businesses. Right now utility companies for the most part are deaf, dumb, and blind as to what is going on inside our distribution grid. Hence, we have brownouts, we have storm-related power outages that take many days and sometimes longer to fully restore. A smart grid enables electric utilities to maintain stable, self-healing networks pursuant to which operators can immediately address problems, often before they result in noticeable problems to consumers such as outages, and often take automated corrective action.

Unfortunately, significant Federal guidelines intervention are required. As I mentioned, CURRENT has been working with utilities

to develop smart grids for several years now. We have found that utilities generally are reluctant to make discretionary technology investments, and we find several reasons for that. Their concern that regulatory rate recovery will be denied after they spend their money on new infrastructure. They have other investment opportunities that bear larger returns, such as generation and transmission facilities. And utilities actually have a disincentive to spend on an initiative that would reduce consumption or that would improve their own efficiencies since they would reduce their profits for any increase in efficiencies have to be passed onto the rate payer.

Some of the problems in the draft bill do address these provisions. Providing for certainty that utility companies would have with respect to cost recovery on a smart grid, any infrastructure deployments we think that is an important Federal guideline. Similarly, utility companies should be able to continue to recover costs during any depreciable life on equipment that is rendered obsolete by smart grid investments. The utility companies have, unfortunately, an incentive to use inefficient equipment out on the wires as long as it is working a little bit. A totally full, depreciable life is eliminated.

Some of the things we would urge the subcommittee to consider actually are enhanced returns. Because of the competing investment opportunities utilities have and restraints on capital, having an enhanced return for capital investments on smart grid initiatives including potential returns on operating and maintenance expenses for smart grid investments is something that could induce utilities to deploy smart grids, and we would urge the subcommittee to consider.

As an alternative to a return on operating expenses, utilities when they create savings in their network create efficiency, they are expected to pass those savings onto their rate payers. Utilities could instead be permitted to retain a proportion of those savings as a result. Getting a return on efficiency spending without actually having to build structure actually results in a less expensive way of developing a smart grid, and the bill does reflect some of these provisions in the proposed Federal guideline for becoming, which several States have started to employ.

We think that regulatory reform is important at the State level. States need to be prohibited from impeding utilities' ability to deploy smart grid, whether directly or inadvertently. The draft bill does have a policy statement to this effect, and we would actually recommend that the subcommittee consider turning that into a Federal guideline an actual statutory requirement.

Finally, Mr. Chairman, there are some provisions of the bill that I think, although well-intended, might actually have the effect of delaying smart grid deployments. As I mentioned, we are doing this today with several utilities. There are other technology companies out there that have developed smart grid components. Utility companies have the capability to do so today. They understand what the effects are on making them more reliable and how to do so. As a result, creating additional commissions and further development studies or demonstration programs, although more useful for untested and underdeveloped technologies actually in this case

would probably serve to delay deployments since utility companies would more likely wait for the outcome of those studies and not deploy in the immediate future. With the strain and the vulnerabilities in the electric grids today, we would want to see smart grid deployments expedited rather than having a sort of wait and see approach for Federal studies. Thank you.

[The prepared statement of Mr. Birnbaum follows:]

**Testimony of Jay Birnbaum  
Senior Vice President and General Counsel  
CURRENT Group, LLC  
Before the House Committee on Energy and Commerce  
Subcommittee on Energy and Air Quality**

**May 24, 2007**

Thank you, Chairman Boucher, Ranking Member Hastert, and Members of the Subcommittee, for the opportunity to testify in support of the Smart Electricity Grid provisions in the Discussion Draft. Such legislation is necessary to the vital modernization of the Nation's critical electric transmission and distribution infrastructure

CURRENT Group, LLC ("CURRENT") specializes in the development and provision of Smart Grids. In particular, CURRENT designs, develops and deploys communications and information technology equipment and services that increase the efficiency, reliability, safety, and security of the electric distribution network.

CURRENT is headquartered in Maryland with offices in Texas, New York, Ohio and California.<sup>1</sup>

As Dr. Michael W. Howard of the Electric Power Research Institute (EPRI) recently testified before this Subcommittee,<sup>2</sup> a Smart Grid enables electric utilities to monitor and maintain stable and healthy distribution networks that alert operators immediately when problems arise and trigger prompt or even automated corrective action. Specifically, a Smart Grid includes sensors capable of collecting and monitoring data from the substation, transformers, meters and other electric distribution devices along the power lines, all connected through a high speed and low latency

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<sup>1</sup> Further information about CURRENT is available at <http://www.currentgroup.com>.

<sup>2</sup> See Testimony of Michael W. Howard, Ph.D., P.E., Senior Vice President, R&D Group, Electric Power Research Institute, "Facilitating the Transition to a Smart Electric Grid," Before the House Subcommittee on Energy and Air Quality, May 3, 2007.

communications system and a distributed computing system capable of real time analysis and event prediction. Smart Grids are capable, in real time, of collecting and analyzing power supply and usage data from these devices and from end user devices as well as providing real-time load management.

**What is the Smart Grid and what can it do?**

Smart Grid systems employ advanced communications equipment and sensors throughout the electric distribution network. A *CURRENT*<sup>®</sup> Smart Grid modernizes the distribution grid by creating a broadband, two-way, communications system on an electric utility's existing wires, permitting a utility to monitor and manage potentially every piece of equipment on its distribution grid. It enables the utility to perform real-time power outage prevention, detection and restoration, both for localized outages and wide scale events. A *CURRENT* Smart Grid also can read electric meters as often as one minute, as well as "on demand," and can enable demand response programs by allowing the utility to manage individual appliances within millions of customer premises. *CURRENT*'s technology also empowers consumers and businesses to monitor and manage their own electricity usage in real-time.

To create the Smart Grid, *CURRENT* overlays its state-of-the-art technology, known as broadband over powerline, at points throughout the existing electric distribution network. No retrofitting or conditioning of the distribution electric grid is required. Once its network is deployed, it can communicate with points anywhere along the distribution grid as well as each electric outlet inside homes and businesses. A utility therefore can monitor and control capacitor banks, transformers, switches, substations and other critical infrastructure.

Smart Grid is a reality today. For instance, in and around Dallas/Fort Worth, Texas, CURRENT is presently deploying the Nation's first true Smart Grid with Oncor Electric Delivery. This system, which ultimately will reach almost two million homes and businesses, is already reading advanced meters at 15-minute intervals; conducting network monitoring that can detect problems before they cause power outages, safety hazards or system quality problems; and providing power outage and restoration detection if outages do occur.

Encouraging a Smart Grid also will help American companies gain and preserve market leadership in what is fast becoming a worldwide market. Countries all over the world need a modernized electric grid, and companies from the United States can be leaders in this global market. Indeed, CURRENT and other American companies already are pursuing such international opportunities, which will create high tech jobs here at home.

**Why does America need the Smart Grid?**

The Northeast Blackout of August 2003 and more recent large power outages resulting from hurricanes and other storms over the last several years underscore the need for Smart Grid systems.<sup>3</sup> The Nation's electric distribution networks are aging and facing increasing strain. The existing grids are one-way systems for the delivery of electricity without the self-healing, monitoring and diagnostic capabilities essential to meet demand growth and new security challenges facing us today. In the Queens blackout last August, nearly 100,000 people were left without power for 10 days as the utility worked to detect, diagnose and respond to the extensive outage with the standard utility method of outage

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<sup>3</sup> The August 2003 blackout impacted 40 million Americans in 8 States and caused \$6 billion of estimated financial losses.

detection. Until recently, utilities had little choice but to rely on what one New York City councilman called the “Paul Revere” method of outage detection – utility crews driving through neighborhoods making visual inspections to attempt to determine where repairs are needed. The Smart Grid will take the guess work out of outage and restoration detection. The capability is particularly necessary in States that are more and more subject to intense weather conditions, such as tornadoes and hurricanes. Power crews would know exactly where to go to repair downed and damaged wires and technicians could expedite power to customers through remote management of switches and other utility infrastructure. Power crews would also know when restoration has occurred, which is important because customers do not usually call to notify utilities of effective power restoration. As a result, line crews spend significant amounts of time searching to confirm power restoration visually, i.e., by viewing which homes and business have lights on, in many cases after restoration has in fact occurred. This type of 21<sup>st</sup> century outage management will reduce the occurrence and duration of outages and in particular facilitate restoration to high priority uses such as hospitals, police stations, National Guard facilities, and to those whose lives depend on medical equipment.

The strain on the Nation’s electric distribution grids is expected to worsen in coming years as demand for electricity outpaces the construction of new facilities. Peak summer demand for electricity is projected to rise by 19 percent nationally over the next decade, but capital committed to electric generation, transmission and distribution is expected to grow by only 6 percent during the same period.<sup>4</sup> Yet at the same time the Nation looks to meet rising demand, 10 to 20 percent of electric energy is lost before it

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<sup>4</sup> The Brattle Group, *The Power of Five Percent: How Dynamic Pricing Can Save \$35 Billion in Electricity Costs*, Discussion Paper filed with the Maryland Public Service Commission (May 16, 2007) (citing North American Electric Reliability Council, 2006 Long Term Reliability Assessment).

reaches the end user due to network faults or inefficiencies – inefficiencies that can be substantially remedied by a Smart Grid.

It is also important to note that electric power generation produces roughly 40 percent of the Nation's carbon dioxide emissions. Finding ways to increase the efficiency of existing distribution and consumption equates to making additional power available at lower costs. Such efficiencies reduce the need for constructing new generation plants and associated transmission facilities. Smart Grid can provide the communications and monitoring necessary to manage and optimize a portfolio of distributed and renewable energy resources. Although 70 percent of all cars, trucks, vans and SUVs could be powered from the electric grid, the time-sensitive demand response enabled by Smart Grid and its ability to measure distributed generation sold back into the distribution grid is necessary to maximize the environmental and economic benefits of widespread plug-in electric vehicle adoption.<sup>5</sup>

A Smart Grid will give the United States the 21<sup>st</sup> century electric grid it needs to thrive in the global economy and to meet growing environmental challenges. Although we will continue to need construction of new and improved generation plants, including those that provide renewable energy resources like biomass, wind and solar, the United States also must maximize the efficiency, reliability, security, and safety of the electric distribution network.

The Smart Grid is also crucial for homeland security. CURRENT's Smart Grid system provides a direct data link to security cameras that provide real-time video monitoring of critical utility assets, such as substations, as well as non-utility critical

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<sup>5</sup> Pacific Northwest National Laboratory Study, available at: <http://www.pnl.gov/news/release.asp?id=204> (Dec. 11, 2006).

infrastructure, such as traffic lights or State and local government complexes. The only requirement is that these facilities are served by the electric distribution network.

***Why must Congress act to encourage Smart Grid?***

Although CURRENT is deploying the first Smart Grid today, utilities in general are slow to embrace new technologies largely because of regulatory uncertainty and economic disincentives. Federal action to address both of these issues is essential to accelerate Smart Grid deployments. Utilities often anticipate that their discretionary adoption of new technology may be politically challenged or that cost recovery will be denied after the fact. An even greater disincentive faces a utility that might seek to create efficiency or encourage lower consumption. Under traditional regulatory models, a utility profits by selling energy. There is no real incentive for a for-profit entity to spend money in order to earn less. As a result, utilities have strong regulatory and financial incentives to spend money on more traditional items, such as new power generation plants, rather than acquiring new technology to make more efficient use of existing power. An added aspect of such disincentives is that a utility can earn a much higher rate of return on new generation plants than on conservation, so utilities accordingly can be expected to spend more on such traditional assets.

As a result of the aging distribution networks, skyrocketing demand, the increasing costs of building generation plants, and the existing disincentives for change, CURRENT believes Federal legislation in this area is essential. We suggest Congress consider various incentives for utilities, including grant programs (particularly to small utilities that want to adopt Smart Grid), tax incentives, accelerated depreciation, and

financial incentives for energy efficiency spending. Suggested investment incentives would include the following:

*Cost Recovery* – utilities should have the certainty of knowing that they can include in their rates the actual costs of investing in Smart Grid systems.

*Enhanced Return* – utilities should be permitted to earn an enhanced return on their investment in Smart Grid systems, including a return on a portion of their operating and maintenance expenses, to induce utilities to spend on Smart Grid investments.

*Retained Savings* – As an alternative to an actual return on operating and maintenance expenses, utilities could be permitted to retain a meaningful portion of the savings resulting from such expenses to the extent they result in efficiencies that otherwise would be passed on to end users (thereby producing a return on the utility's expenditure).<sup>6</sup>

*Obsolete Equipment* – A utility should be able to recover the costs of equipment rendered obsolete by its deployment of a Smart Grid system, based on the remaining depreciable life of the obsolete equipment.

*Regulatory Reform* – States are vital players in the regulation of the Nation's electric infrastructure, but should not be allowed to prohibit or impede a utility's deployment of a Smart Grid system on its distribution facilities.

Some of these incentives are already addressed in the draft bill; the remaining we hope the Committee will consider.

CURRENT supports the Discussion Draft, but would like to underscore the delays that will result if legislation were to focus too much on additional studies, demonstration projects, and creation of additional agencies. The technology needed for a Smart Grid already exists. More study is not necessary. What is needed is to remove existing regulatory constraints and to create affirmative incentives for rapid action. As was the case decades ago when the Rural Electrification Act helped to wire the Nation, Congress should act to ensure that the benefits of a Smart Grid become available to all Americans as swiftly as possible.

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<sup>6</sup> This is especially applicable since O&M expenditures to implement a Smart Grid will cost the utility, and therefore its rate payers, less than if the utility were to capitalize the entire cost of building the Smart Grid.

**Summary of the Testimony of Jay Birnbaum, Senior Vice President  
and General Counsel, CURRENT Group, LLC  
Before the House Committee on Energy and Commerce  
Subcommittee on Energy and Air Quality  
May 24, 2007**

CURRENT Group, LLC (“CURRENT”) specializes in the development and provision of Smart Grids. Smart Grids are capable, in real time, of collecting and analyzing power supply and usage data from devices deployed all along the distribution network and from end user devices. Smart Grid is a reality today. CURRENT is presently deploying the Nation’s first true Smart Grid with Oncor Electric Delivery in Texas. This system, which ultimately will reach almost two million homes and businesses, is already reading advanced meters at 15-minute intervals; conducting network monitoring that detects problems before they cause power outages, safety hazards or system quality issues; and providing power outage and restoration detection if outages do occur.

The Northeast Blackout of August 2003 and more recent large power outages resulting from hurricanes and other storms over the last several years underscore the need for Smart Grid systems. The Nation’s electric distribution networks are aging and facing increasing strain. The existing grids are one-way systems for the delivery of electricity without the self-healing, monitoring and diagnostic capabilities essential to meet demand growth and new security challenges facing us today.

Increasing the efficiency of existing distribution and consumption equates to making additional power available at lower cost. Such efficiencies reduce the need for constructing new generation plants and associated transmission facilities. Smart Grid can provide the communications and monitoring necessary to manage and optimize distributed and renewable energy resources and to maximize the environmental and economic benefits of widespread plug-in electric vehicle adoption.

For these reasons, CURRENT believes Federal legislation in this area is essential. Suggested investment incentives include the following:

*Cost Recovery* – utilities should have the certainty of knowing that they can include in their rates the actual costs of investing in Smart Grid systems.

*Enhanced Return* – utilities should be permitted to earn an enhanced return on their investment in Smart Grid systems, including a return on a portion of their operating and maintenance expenses, to induce utilities to spend on Smart Grid investments.

*Retained Savings* – As an alternative to an actual return on operating and maintenance expenses, utilities could be permitted to retain a meaningful portion of the savings resulting from such expenses to the extent they result in efficiencies that otherwise would be passed on to end users (thereby producing a return on the utility’s expenditure).

*Obsolete Equipment* – A utility should be able to recover the costs of equipment rendered obsolete by its deployment of a Smart Grid system, based on the remaining depreciable life of the obsolete equipment.

*Regulatory Reform* – States are vital players in the regulation of the Nation’s electric infrastructure, but should not be allowed to prohibit or impede a utility’s deployment of a Smart Grid system on its distribution facilities.

Mr. BOUCHER. Thank you very much, Mr. Birnbaum, and thanks to each of our witnesses for sharing your thoughts with us this morning.

Ms. Callahan, let me compliment you on the work that the Alliance to Save Energy is doing under your leadership in order to develop a consensus among a variety of interested parties on performance standards for lighting. I think we all appreciate the work that you have undertaken.

You indicated that even today you have a meeting following this hearing among those stakeholders and that you are optimistic about a consensus on those standards being not developed by those conversations. We would welcome that, and we hope that you can come forward with it. You understand, of course, that we are operating on a pretty short timeframe.

Ms. CALLAHAN. Right.

Mr. BOUCHER. And we will be having markups in June on this subcommittee on the energy efficiency title as well as the other three titles and other material that will be forthcoming shortly, all of which will be marked up together. And that doesn't leave us a lot of time. So my question to you is how quickly do you really think that you are going to be able to develop this consensus and present it to us?

Ms. CALLAHAN. Thank you, Mr. Chairman. You are asking me to look into a crystal ball, but I will for whatever that is worth. First of all, let me say that I think the energy behind the negotiations is really coming in trying to meet your timeframe. Everyone is very aware of that, as well as the Senate, so we are working very hard. It is a face-to-face meeting today between manufacturers. People actually changed their plans and are flying into town from literally all across the United States to do this. We met last week face to face as well. I am optimistic. I think we will get there. There are significant challenges, effective dates, what the standards need to look like, what preemption is going to look like at the Federal level. These are tough issues to tackle. We are committed to staying late tonight. People are changing their Memorial Day weekend plans. We have committed to go through tomorrow. I am hopeful that we will deliver something to you all by early next week. I can't guarantee it, but that is our goal.

Mr. BOUCHER. Just lock them in the room until they come to an agreement. Well, thank you. We all appreciate the work that you are doing on that.

Mr. Birnbaum, let me compliment you personally and CURRENT Technologies for setting forth in such broad and eloquent terms the vision for what a smart grid can accomplish. The leadership you have demonstrated and your company has over the years is much appreciated. We have tried to respond as best we can to the effort to deploy the smart grid through the provisions in that title of this bill. Understanding that the regulatory authority over retail electricity rates resides at the State level, and most of these issues really fall within the advent of retail electricity regulation. We are necessarily somewhat limited with what we can do from the Federal standpoint in order to facilitate smart grid deployment. So given that inherent limitation, beyond the provisions that you have discussed that we have in our draft legislation, do you have rec-

ommendations for us on other steps that we could be taking on this subcommittee or perhaps through regulatory action at one of the agencies or through grant or loan programs of some kind that would aid in the effort to deploy smart grid?

Mr. BIRNBAUM. Thank you, Mr. Chairman. With respect to the last part, being the loan or grant programs, they would probably be most useful in the rural areas or the other underserved, more difficult to serve areas where the electric distribution network tends to get technology and developments last and usually you are not served by investment from utilities and as a result they have a more difficult time raising capital to make those investments. The concern we have with those types of programs vis-a-vie industrial utilities, large municipal utilities, is generally the capital is available. The utility understands what is necessary to make the grid more reliable, but because of the limitations in the State regulatory environment, as you point out, they tend to have disincentives to do things the way they did the day before as opposed to what we want them to do tomorrow. Providing for some of these initiatives, and I understand you can't do rate making at the Federal level for each State utility, but providing guidelines at the Federal level for how State commissions should regulate for the provision or the deployment of smart grids we think is something that is similar to what Congress has done in other industries as well as industry including in 2005.

Mr. BOUCHER. So some sort of model guideline is what you are suggesting?

Mr. BIRNBAUM. Yes.

Mr. BOUCHER. Where would you suggest that that guideline be developed?

Mr. BIRNBAUM. As opposed to this subcommittee?

Mr. BOUCHER. Well, should it be in a statutory form? That would be somewhat unusual I would think. Generally this is something that an agency would put forward. Have you had any discussions with the DOE about the possibility of DOE undertaking that kind of mission?

Mr. BIRNBAUM. We have begun to have the conversation with the Department of Energy.

Mr. BOUCHER. Let me ask this. Do you think DOE needs a statutory directive to do something like that?

Mr. BIRNBAUM. I would defer to DOE on whether they think they need that, Mr. Chairman.

Mr. BOUCHER. Mr. Rogers, do you have any comment on that?

Mr. RODGERS. Thank you, Mr. Chairman. I am not in a position to comment on our statutory authorities in the area of electricity, but I would be happy to submit for the record in coordination with the Office of Electricity Delivery.

Mr. BOUCHER. OK. Well, the question precisely stated as I comprehend Mr. Birnbaum is would you have sufficient authority under existing law to develop a model of State regulatory program that would be in aid of deploying the smart grid, and I presume that would include, and Mr. Birnbaum, you can supplement this if you like, but I presume that would include things such as time of use pricing and also a regime for smart meter deployment. Mr. Birnbaum, what else?

Mr. BIRNBAUM. Those are important aspects of a smart grid, Mr. Chairman, but we would also provide for automation of the network so utilities can do remote outage management, outage prevention. A lot of the technology that we deploy along the electricity grid tells the utility company before something is so wrong that it results in an outage. It provides for higher efficiency, roughly 10 to 20 percent of electricity is actually lost before it ever reaches the end user. So by making the networks more efficient, we can actually do more than just smart—

Mr. BOUCHER. So in the interest of time, let me ask you this. First, Mr. Birnbaum, why don't you submit to us your proposal for what that model for regulatory program at the State level should look like, and then we are going to send it to you, Mr. Rogers; and once you have seen that, perhaps you can comment to us on what additional statutory authority you might need in order to adopt a program that roughly has those characteristics.

Mr. RODGERS. We look forward to that work with the committee.

Mr. BOUCHER. And we are going to need to do this pretty quickly. So Mr. Birnbaum, by next week perhaps?

Mr. BIRNBAUM. Yes, we will do that.

Mr. BOUCHER. That is great. Thank you to each of these witnesses, and I am pleased to recognize the gentleman from Illinois, Mr. Hastert for 5 minutes.

Mr. HASTERT. Thank you, Mr. Chairman. Mr. Rogers, Section 104 provides for regional variations for heating and cooling equipment. Common sense says cooling, air-conditioning equipment across southern California and Arizona is different from the cooling equipment that you would find in Georgia because of humidity you have coolers instead of air-conditioners, dehumidifiers. And up in the north it is a different situation. They probably only use maybe 400 hours a year as opposed to maybe 4,000 hours. I am pulling numbers off the top of my head but you understand. I think it is a common-sense thing to do, but for your regulation, can you do this?

Mr. RODGERS. Thank you for the question. Under the current statutory authority, the Department is limited to one national standard for each product.

Mr. HASTERT. So what if we change the standard or we change the authority?

Mr. RODGERS. A change of authority would be required for regional standards. We have a strong preference for national standards, but there are some products for which regional variations may allow additional energy savings.

Mr. HASTERT. So let me re-ask this question. Can you do this common-sense thing because there are products such as air-conditioners and coolers that have different geographical needs so thus geographical standards across the country. Can you do it without us changing your authorization?

Mr. RODGERS. Without changes to the authorization, the only way that we can allow States to use standards other than the national standards is through the statutorily approved waiver process where the States submit an application to adopt a different standard.

Mr. HASTERT. Would you provide to this committee the authorization changes that you think need to be done in order for you to do this on a regional basis?

Mr. RODGERS. We would look forward to working with the committee on what might be needed in order to do this.

Mr. HASTERT. Thank you. Mr. Birnbaum, you said something at the very end of your discussion, your statement. You said the discussion draft would delay the implementation of the smart grid as it is now. Why?

Mr. BIRNBAUM. Utility companies tend to take a wait-and-see attitude. They are economically conservative, they are very, very risk adverse, and that is the regulatory environment in which they have existed for decades. So we believe that demonstration programs in addition to being unnecessary since technology is already here and being built would simply give utility companies an opportunity to test on a very small basis, test the technology and then all the other utilities would wait around and see how that test comes out, rather than actually going to deploy themselves. And having worked with utility companies now for several years, we have seen that one thing they will do is they will do pilot upon pilot upon pilot before actually implementing the technology, and usually these are the economic and regulatory disincentives I mentioned earlier that are a cause for their delay.

Mr. HASTERT. Mr. Birnbaum, in your work obviously, can you demonstrate to utility companies that through use of your programs that there is not only an efficiency of moving generation product through their grid, but also across the country so it is an economic-driver?

Mr. BIRNBAUM. Absolutely. The utility companies operate networks that they have no idea what is going on inside their networks. So when there are outages, they spend many more times than they should have to spend to detect where those outages occur to figure out what the cause is and how to repair that. A fully automated system, for instance which is one of the things a smart grid provides, the utility company can avoid lots of outages by detecting any irregularities in the network and as a result not have to spend time—

Mr. HASTERT. Well, let me follow up then. Because most utilities are regulated by a State public utility corporation, PUC's, commissions, they are given a rate of return on investments, correct?

Mr. BIRNBAUM. Yes.

Mr. HASTERT. And that is how they get their income basically?

Mr. BIRNBAUM. Yes.

Mr. HASTERT. So cost efficiency then isn't necessarily the goal?

Mr. BIRNBAUM. That is correct. That is one of the problems the utilities have. The more efficient they get, the more they either make less profit or no more profit, so they have a disincentive to take risk on efficiency spending because if it doesn't result in—

Mr. HASTERT. Mr. Chairman, I am going to ask your indulgence. I want to ask him one question. I went on a little bit, but in your estimate, in your opinion, what do we have to do, do you have something that is a guideline to State utilities or is there some type of economic incentive that we can write into this bill? How do you get public utilities to adapt to this type of change?

Mr. BIRNBAUM. I think it would be Federal guidelines that tell the utilities themselves that they can—smart grid technologies. These are infrastructure projects and as a result that they are rate making regulatory bodies cannot deny them the recovery for those expenses.

Mr. BOUCHER. Thank you very much, Mr. Hastert. The gentleman from Massachusetts, Mr. Markey, will be recognized for 3 minutes.

Mr. MARKEY. Thank you, Mr. Chairman. Ms. Callahan, on page 5 of your testimony, you recommend that we make it clear that Federal law doesn't preempt the State appliance efficiency standards if the Energy Department fails to actually exercise the authority that Congress had granted it by failing to issue any standard or by issuing a no standard. Now, the Department of Energy was forced to sign a consent decree last year in which they pledged to meet the deadlines set forth in the report submitted to Congress in response to the Markey amendment to the 2005 Energy Policy Act. If DOE misses any of these deadlines, should we clarify in the law that the States would no longer be preempted?

Ms. CALLAHAN. I think that, yes. If you look at the other provisions then that require periodic review or the appliance standards that are there and updating, one of the things that is included currently is that if that effort isn't undertaken, then a preemption would lift and States could take action. I think it is very important if the Federal Government does not take action or takes action to establish what is in essence a no standard, States should not have their hands tied to that. California, New York, places that want to go forward should be allowed to.

Mr. MARKEY. OK. I thank you. Disgracefully, the Bush administration's Department of Energy has missed 34 consecutive mandated deadlines for appliance efficiency standards, and it is about as great a disgrace as I have ever seen agency or given the greenhouse gas threat and energy dependency. Mr. Rogers, if DOE fails to meet these deadlines, should the States be able to step in and act?

Mr. RODGERS. Thank you. It is a very complicated question. Federal preemption goes to the heart of the standards program that Congress has established, and I think the number of deadlines that we face, we do not plan to miss any deadlines as you have seen from the plans that we have been submitted.

Mr. MARKEY. I know but you have missed 34 in a row, so as my mother says, no, you missed 34 times in a row, and you say, I have plans to meet it from now on. So what should we do if you don't meet the standards, if you don't meet the deadlines?

Mr. RODGERS. I think we feel that the Federal preemption is a critical part of the program that Congress has established, and it should only be changed with very careful clarification.

Mr. MARKEY. OK. I am not inclined to give you that latitude. I think it has been just absolutely disgraceful.

Ms. Callahan, in your testimony you also call for some reforms in the laws relating to energy service performance contracts. First, you say the authorization for Federal agencies to enter into ESPC's should be permanently extended. Why is that so important?

Ms. CALLAHAN. Well, the extensions were allowed to lapse and were then put back in place in the Energy Policy Act, and when that happened, the agencies became reluctant, even though they were reinstated to go forward and enter into those contracts. And so you have companies, energy savings companies, that are out there that are working to provide energy efficiency upgrades at no upfront cost to the Federal Government, and they have to have certainty that that business is going to continue. We can't let it just continue to lapse and wane as it did before EPACK 2005.

Mr. MARKEY. But you say that Congress should end any self-imposed agency caps on the duration of the ESPC's. There is statutory limit of 25 years and on total obligations under ESPC's, what are the self-imposed agency caps that you are referring to, and what can we do to fix them?

Ms. CALLAHAN. Well, we understand some agencies are effectively saying they are not going to use more than a certain threshold dollar amount on ESPC's but again, we don't see the rationale behind that because there are no upfront cost to the Federal Government. The efficiency upgrades are made and then there is guaranteed energy savings that are used to pay for those over a period of time. Part of the savings revert to the agency and then the other to the ESCO until the efficiency upgrade is completely paid for. Then all the savings revert.

Mr. MARKEY. Finally, Mr. Rogers, Ms. Callahan's prepared testimony calls for an adoption of an energy efficiency resource standard. Does the DOE support that legislation?

Mr. RODGERS. I am not familiar with the specific proposal, and I would like some time to analyze it but we do agree in spirit that energy efficiency is our lowest cost, most accessible access to energy savings.

Mr. MARKEY. I think you may believe it but you haven't acted on it. That is why obviously this committee is extremely, extremely dubious about the commitment that your agency has had to that. Thank you, Mr. Chairman.

Mr. BOUCHER. Well, thank you very much, Mr. Markey, and let me just note that I share the gentleman from Massachusetts' dismay that the Department of Energy has missed so many deadlines for issuing these applied standards going back several decades. However, under Assistant Secretary Karsner I am personally very encouraged with the progress that is being made, and I wouldn't want to leave Mr. Rogers with the impression that we are not appreciative of the current efforts that are now being made in order to correct those very serious problems from the past.

The gentleman from Michigan, Mr. Upton, is recognized for 5 minutes.

Mr. UPTON. Thank you, Mr. Chairman. I appreciate this hearing, and I also want to say I appreciate your very good bipartisan spirit as we look to put together a very strong bill which the American public is going to support, and I am convinced frankly that at the end of the year and also the end of this Congress that the legislation that we move out of this committee will be looked at as one of the very top issues that the 110th Congress deals with. And it is obviously certainly appropriate as we look at these high energy costs today.

Ms. Callahan, I certainly welcome your appearance here and appreciate your hard work as we work to put legislation together as it relates to energy savings with light bulbs and efficiencies across the country. And I know that as you work through this weekend knowing that we are going to pick up the baton very quickly when we return after Memorial Day, we have been working hard at trying to find out where different players in the private sector may be on the standard for light bulbs. And we are a little frustrated in terms of looking and seeing what signals we can get from outside sources.

I want to compliment Mrs. Harman for her good work, and the two of us, along with Mr. Hastert and a few others have been sitting down looking for legislative language, and I just would like to suggest that if you are unable to reach some type of agreement over the next week knowing that we come back on Tuesday the 5th, that we may see your, you may share with us the last offers by the different parties so that we can, in fact, make a decision, knowing full well that at least under Mr. Boucher we have a placeholder that is there, but we know that we can do better in terms of where we are at.

Ms. CALLAHAN. Mr. Upton, I certainly will take that back to the manufacturers and the advocates, and we will see if they, if we can't reach agreement, which we are hopeful that we can, if we can give you the last round of negotiations. I can't commit to that without checking with all the others, though.

Mr. UPTON. Because we are absolutely committed to having a title on this bill that is going to include some of those provisions, and we are working with the Senate to try and see that done.

One of the things that you indicated in your testimony, I just want to get the timeframe and knowing that you are limited on your time, you said that you expected 65 billion kilowatt hour savings, and is that per year or over 5 years?

Ms. CALLAHAN. Per year.

Mr. UPTON. And that is the equivalent of the 80 coal fire plants per year?

Ms. CALLAHAN. Yes. The output from the coal-fired power plants or 30 nuclear plants if you want to take it nuclear.

Mr. UPTON. Wow. Thank you. I appreciate those numbers.

Mr. Rogers, where is the Department of Energy in terms of looking at where we might go on light bulb standards and new efficiencies? Have you all looked at anything?

Mr. RODGERS. Yes, sir. We are currently conducting rural maintenance on lighting as required by the Congress, and as the consensus process moves forward with the stakeholders, we will make sure that they know that the full resources of the Department and our national laboratories are available to them if there is any technical assistance that we can provide as we have done so in the past with home appliances.

Mr. UPTON. And are you ahead of schedule or behind schedule in terms of where you wanted to be at this point?

Mr. RODGERS. Since the publishing of the 5-year plan submitted to Congress in January 2006, we are, have met all the deadlines for all of our appliance standards.

Mr. UPTON. And that includes lighting?

Mr. RODGERS. Includes lighting. Yes, sir.

Mr. UPTON. OK. One of the things that I just might note is that one of the things that Mrs. Harman and I are working on, and I think we are very close to having legislative language on is an amendment that we will be putting on each of the appropriation bills as they pass the House, indicating that the Federal Government itself will be buying these new energy equivalent light bulbs beginning in the next fiscal year, fiscal year 2008, as we feel that that will help generate a market, where, in fact, to encourage the manufacturers to know that, in fact, there is going to be a buyer out there. So not only will the Federal Government give tremendous amounts of money from the energy that it uses with the new bulbs as we replace the ones that they built, that they burnt out, but obviously provide the basis that individual consumers, both business and private sector families will be able to purchase as well.

Do you have any comment on that, proposal of that magnitude, Mr. Rogers?

Mr. RODGERS. Thank you. It is an excellent question, and I would be happy to share with the committee current requirements placed on the Federal agencies by statute and through executive order that encourage all agencies to purchase very efficient fixtures and lighting, including Energy Star products. And I can, would be happy to submit that information.

Mr. UPTON. Great.

Ms. Callahan.

Ms. CALLAHAN. We are very, very supportive of having not just GSA but all Federal buildings move toward and purchase only those Energy Star labeled and efficient lighting.

Mr. UPTON. You know what we might do is, we might share with you the language. I don't have it with me this moment, but in the next week maybe we will get the language to you. Maybe if you can write a letter of support that we can use during the debate on the House floor, it will come at the end of each one of these appropriation bills. No funds shall be used to purchase the old stuff and be able to get the—but a support letter might help us, particularly as we approach the leaders on the Appropriation Committees to get that done.

Ms. CALLAHAN. We would be happy to do that, sir.

Mr. UPTON. Mr. Rogers. Same thing?

Mr. RODGERS. We look forward to working with the committee as it moves forward on this provision.

Mr. UPTON. Great, and I appreciate that.

Mr. Rogers, I have a question as it relates to the regional efficiency standards, and I just want to know what your sense is. We have talked about enforcement and how easy is it for the manufacturers and the retailers to comply with a regional efficiency standard and specific comments on that issue.

Mr. RODGERS. It is an excellent question. I think enforcement gets to the heart of the issue concerning regional standards. Under the current program we have one national standards, and that is enforced upon the manufacturers. If regional standards are produced, manufacturers would be responsible in some way, but it is unclear how they could in all cases enforce their supplier, the chain

retailers if those different products were marketed in different areas of the country. That would be an area we would look forward to working with the committee to better understand how regional variations could be enforced.

Mr. UPTON. Thank you. Mr. Chairman, I yield back.

Mr. BOUCHER. Thank you very much, Mr. Upton.

The gentleman from Pennsylvania, Mr. Doyle, is recognized for 5 minutes.

Mr. DOYLE. Thank you, Mr. Chairman.

Mr. Rogers, the draft legislation calls for creation of a new commission which has the role, amongst other things, to encourage progress on smart grid protocols in the development of the smart grid. Is the creation of another entity the most expedient means to accomplish this task, given that when Congress passed PURPA and the Energy Policy Acts of 1992, and 2005, the Congress set forth the national policy, and then directed the States, Federal entities with jurisdiction and the industry itself to meet those goals. Could we follow this model rather than create a new commission?

Mr. RODGERS. I really appreciate the question. We have only begun our analysis of the discussion draft, and I don't, I am not in a position to comment on specific provisions. Let me just say that we know that smart grid technologies are fundamental to the, increasing the market uptake the energy efficient technologies and maximizing energy savings.

Mr. DOYLE. I would be interested when you do get time if you could tell us whether you think we need a new commission or whether we can do this as we have in the past.

Also, the draft reflects there is a need for the creation of national protocols to assure that there is two-way communication needed all along the grid, from appliances in the home to the large generating plant. And since this is a standard setting exercise, should we consider the existing agencies such as NIST to be charged with this task rather than creating another commission?

Mr. RODGERS. That is a very good question, and, again, I would like to work with the committee on the specific details of those provisions.

Mr. DOYLE. And finally, just one last question, and I will close. The draft requires the development of specific data that consumers are entitled to, but that only seems to encourage progress on the development of technology and regulatory reforms needed to insure that the information can be realistically provided to consumers. There seems to me to be a disconnect between the information requirements and the steps needed to insure that real time information can be timely provided.

If the draft were adopted, how could we be assured that the infrastructure is in place to insure that the information which the legislation says consumers are entitled to can actually be provided?

Mr. RODGERS. The, again, we have just begun our review of the draft. I would like some additional time to get back to you on that. I do think that consumers have a growing body of information available to them, that that is one of the most critical parts. And I do hope that in the next panel there will be some additional opportunities to, for the DOE witnesses to talk about these issues, including the smart grid.

Mr. DOYLE. Thanks. Just one more question. The legislation also provides training for State and local officials to implement energy codes, and it also provides for training for Federal contracting officers for energy performance contracts and related energy efficiency services associated with those agreements.

Now, the effective way to make sure these codes and performance contracts are successful, I think is to make sure we have a skilled workforce to assist us in implementing these programs. Shouldn't worker training be a part of any comprehensive approach to making America an energy-efficient Nation?

Mr. RODGERS. That is a very good question. I don't think in my position at the Department of Energy I can speak to the issue of worker training. I would say that the Department's existing program in the area of building codes we find education training of code officials to be extremely beneficial and important, and the materials that we provide in that area are very, very popular.

Mr. DOYLE. In your opinion do you think it would be appropriate to have training funds in this legislation to make sure that workers are properly trained to meet the legislative objections of this bill?

Mr. RODGERS. I would like to work with the committee on whether or not we need additional authorizations. Our current billing codes program as renewed under the Energy Policy Act gives us tremendous flexibility to work with the State and local code officials in that area.

Mr. DOYLE. Thank you, Mr. Rogers.

Mr. Chairman, thank you. I yield back.

Mr. BOUCHER. Thank you very much, Mr. Doyle.

The gentleman from Illinois, Mr. Shimkus, is recognized for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman. I also want to highlight the frustration that the committee has when agencies don't meet guidelines, and of course, when it is the Republican administration and they can attack the DOE for that. It, as Republican I take great offense. So these two questions deal with some of the draft.

Section 109 requires a precise schedule for DOE to update its rulemaking and findings. Can DOE make the schedule in this section, or is it likely that DOE standards will sunset because dates were not met?

Mr. RODGERS. We have just begun our analysis of section 109, but I would say that we would like to work with the committee, because I am concerned that some of the deadlines are, and the durations are so close together that it might impair our ability.

Mr. SHIMKUS. My follow-up was going to be: can you give us some information how we can modify that? Because we want to set attainable standards, but we don't want to delay it. I mean, we would rather set standards that you can reach versus unreachable standards and then have delays and all this frustration, and I, if you would work with us, I think we would have some receptivity, as long as it is not an issue of delay.

What about the, do you have the resources to accomplish the standards updated in section 131? I know, you are going to work with the committee, and we will receive great information and help and assistance from you to look at those provisions.

Mr. RODGERS. I would, well, I couldn't have said it better myself.

Mr. SHIMKUS. You have. A couple times.

Mr. RODGERS. I would say that we believe very strongly in building codes and have moves forward on that aggressively since the Energy Policy Act of 2005, and in 2007, under the continuing resolution we were able to allocate additional resources to the building codes effort. The section language in the discussion graft does set a new bar, very high, and we would look forward to working with the committee on what it might take to implement that section.

Mr. SHIMKUS. Great. As you know the committee's going to move rapidly, so we are going to need pretty quick movement from the Department.

Mr. Birnbaum, quickly if you could comment on the DOE study on homeland security benefits of the smart grid.

Mr. BIRNBAUM. Congressman, the problem with Department studies is they tend to serve further delay. The homeland security implications of having wide-scale power outages in Los Angeles and New York, other large cities in small areas, so we don't necessarily see a large need for further study, rather trying to incent the utilities to deploy smart grid where they think the focus should be.

Mr. SHIMKUS. And let me follow up with the issue of is a smart meter and a smart grid, are they complimentary, or could they be, can you promote one over the other and that whole debate?

Mr. BIRNBAUM. They are different. A smart grid would include smart meters and load control devices in consumer homes, but it is much more than just smart metering. It is, again, a fully-automated distribution network, so the utilities can do real-time monitoring and maintenance and preventive maintenance on its network, just the way the total medications network works today.

Mr. SHIMKUS. But the smart metering would have some energy, I mean, cost benefit analysis as you look at cost and deployment and time, smart metering is probably a way to be very successful.

Mr. BIRNBAUM. Smart metering is part of the solution. Yes.

Mr. SHIMKUS. And finally, Ms. Callahan, the, we know that when the automobile came, the people who made the buggy whips went out of business.

Ms. CALLAHAN. Yes.

Mr. SHIMKUS. We know that when the first light bulbs arrived, the candle makers were, had a great loss of jobs. Will there be any job losses in the lighting industry associated with phasing out or banning incandescent light bulbs? How many, and which States?

Ms. CALLAHAN. That is, I appreciate the question. I am not sure I can give you a detailed answer, but we will provide it. There are, from what I understand from the manufacturers, there are maybe, and this is just a ballpark figure, maybe 3,000 jobs by two different manufacturers in the United States making light bulbs and derivative products to use in the assembly of the light bulbs. Whether or not those jobs are lost I think is a question that will get answered over time, because we are not going to stop making light bulbs. We are only going to stop making the inefficient junk that is on the market. So they are going to be made, and right now CFLs are largely manufactured outside the United States. You probably know that.

Mr. SHIMKUS. Yes.

Ms. CALLAHAN. But we are looking at LED lighting and efficient halogen lighting, and those are going to need to be made somewhere. So the hope would be that we can work with manufacturers and try to keep those jobs in the United States.

Mr. SHIMKUS. Yes, and I hope that you do that, and just my final comment because my time has expired, is that there is concern that you can't retrofit these old plants.

Ms. CALLAHAN. Right.

Mr. SHIMKUS. And there will be job loss, and that whole debate of capital formation, taking assumption of the risk, what happens to these jobs. I think the job training issue was part of this whole debate, too, and that is why I want to throw that in the arena for discussion.

Ms. CALLAHAN. If I could just also say that when you look at deploying energy efficiency, there is investment into the economy, and there are new jobs created from that. So if you look at the Energy Star, for example, for every dollar we invest in Energy Star, the savings show that that results in about \$20 of energy savings for consumers, but it also sparks investment of about \$15 into the economy.

Mr. SHIMKUS. You said that right when Inslee was walking in, too, and I bet you he appreciated that, because that is kind of what he says all the time.

I yield back my time.

Mr. BOUCHER. Thank you very much, Mr. Shimkus.

The gentleman from Washington State, Mr. Inslee, is recognized for 5 minutes.

Mr. INSLEE. Well, I appreciate that because some people haven't listened. Maybe they will now when someone else said it. I don't know.

I was unable to hear your testimony. I am sorry. I was in another committee, so if I repeat this, my apologies. I want to ask you in the discussion draft there is a proposal to essentially create a price mechanism for coal to liquids that would give presumably investors confidence that there will be a price that will be worthy of their investment and therefore, spur development of that technology. And I don't want to argue that issue whether it is good or bad at the moment, but if, is that idea, should it be equally applicable to other emerging technologies? In other words, if we are going to create price supports for emerging technologies, would it make sense to also do it for emerging solar thermal plants, which have new methods of heating liquids to 1,100 degrees and running steam turbines to new thin cell photo technology that perhaps a grid-based electricity in a few years, to wave power generation that we now have the first buoy going off the west coast of the United States, going to create electricity, to advanced forms of cellulosic ethanol, which I personally think has a bright future but has some technological advancements, and of course, we want to see. I guess the question is if we are going to have a price guarantee signal for one fuel, doesn't it make sense to have it for several of these emerging technologies? And all of the ones that I just listed have the added benefit of at least 50 percent reduction of CO<sup>2</sup> compared to their competitor, fossil fuels. Would that make sense?

Mr. RODGERS. That is a very good question, sir, and I believe that the second panel will get more into the details of the coal-to-liquids issue and the price and the signals that you are talking about. As a manager of our technology development programs I can tell you research and development can deliver breakthroughs in technology, but those technologies then need to be adopted in significant quantities in the marketplace. And as Congress considers who to move forward on these important issues, I think you will have to look at all of those issues.

Mr. INSLEE. Obviously we need to commercialize these technologies.

My review of these various technologies that I just listed, I think all of them are very promising, and I think have in my view probabilities of commercial application and commercial success. Can you make any comments about that relative to coal to liquid, coal to liquid has some challenges. You got to figure out how to sequester the CO<sup>2</sup> in the production process.

If you were going to compare this emerging solar thermal, thin cell, photo tag, wind energy technology, cellulosic ethanol, and plug-in hybrids, I just drove the first car that gets 150 miles a gallon, I think those technologies are at least as well developed and at least as promising as coal to liquid.

Do you have any comments on that?

Ms. CALLAHAN. It is not my area of expertise.

Mr. BIRNBAUM. Same here, Congressman.

Mr. RODGERS. Well, I will tell you. I am a big fan of all the energy efficiency and alternate fuel technologies. I think we need a balanced portfolio. I believe the next panel will get into some of the issues related to coal to liquids, and I would say any time we introduce a new, higher-performing technology that delivers national security, energy security, environmental and economic benefits, we also have to address how those technologies are brought to the marketplace and provide it at reasonable costs to the consumers.

Mr. INSLEE. Now, you may have heard some discussion about what we are going to try to do this summer and what we are going to try to do later in the year. Later in the year this committee is going to have under the great leadership of our Chair a discussion of how to develop a carbon system to have a price on carbon dioxide, which will help in the commercialization of these technologies because it would make them economically competitive. But some of us believe there are many, many things we need to do in addition to that to help these emerging technologies, solar, wave, several others. Along the lines potentially of this price signal that has bound with discussion draft about coal to liquids, along the lines of renewable portfolio standards, along the lines of low carbon fuels standards, along the lines of incentives for consumers and producers.

I am just going to ask you for any comment about that, whether it makes sense to consider those now, even independently of a cap and trade system. I guess the question is do those ideas make sense even independent of a cap and trade system?

Ms. CALLAHAN. I will make a comment from the perspective of energy efficiency. It is, in my mind that is a no-regrets policy. So all of the provisions, the 29 or so provisions that are in here, are

going to have a significant impact on greenhouse gas emissions, and we need to go forward and take those actions.

With respect to, because that gets us down the road and gets us toward the goal that we all want to see. With respect to a cap and trade program, it is not necessarily going to drive energy efficiency particularly in the end-use sector. There are going to need to be complementary policies or you are going to need to look at how you best advantage both energy efficiency and I would argue renewable energy, too.

Mr. INSLEE. And I was very pleased that the Chair had commercial building standards, rebuilding standards we are going to hold to include residential standards as well.

Thank you.

Mr. BOUCHER. Thank you very much, Mr. Inslee.

The gentleman from Mississippi, Mr. Pickering, is recognized for 5 minutes.

Mr. PICKERING. Thank you, Mr. Chairman. I appreciate this hearing and the panel.

Let me ask Mr. Birnbaum first. As we heard from Ms. Callahan that the context of the savings if we adopted more efficient standards on light bulbs, what that would mean from an energy capacity and efficiency, what savings do you see with smart grid and smart technology, smart metering technologies? What is the equivalent if we were to broadly adopt these technologies from saved production of energy and cleaner consequences?

Mr. BIRNBAUM. Several fold, Congressman. As far as the distribution facilities themselves, cannot be officially managed today if the utility company doesn't have any insight as to how well everything is performing. So the fact that the utility company can then measure every device in its network and replace them only when necessary—

Mr. PICKERING. Has there been any study of how much we are talking about as far as more efficient energy production? Like the equivalent of 80 coal-fired plants, I guess is what I am asking.

Mr. BIRNBAUM. I don't think there were such specific studies. We do know that energy of roughly 10 to 20 percent of energy is lost before it ever even gets to the end user. You have had testimony before the committee previously of over \$100 billion in financial loss in the country due to averages each year.

So these are the things that smart—

Mr. PICKERING. That you can quantify.

Mr. BIRNBAUM. Yes.

Mr. PICKERING. The language has, of our current draft, has the issue that you addressed as far as making sure that our States allow the recoverable costs for these investments. Do you support that language? Is it sufficient? Do you need to strengthen it, modify it?

Mr. BIRNBAUM. We do support it. I had made some suggestions earlier about strengthening the language to try to provide for either added incentives or increased returns for utility companies or returns on other types of expenditures as well.

Mr. PICKERING. Are there other things that we can do that may not be under this committee's jurisdiction would be accelerated depreciation? We discovered in Mississippi after Katrina that if we

accelerate depreciation, it will allow the doubling of expensing. This serves as a tremendous incentive for that capital investment. Would that also be something that you would support?

Mr. BIRNBAUM. Absolutely, Congressman.

Mr. PICKERING. Mr. Rogers, do you believe that incentives work, whether it is grants, long guarantees, accelerated depreciation, monetary incentives, would help us adopt these new technologies and efficiencies?

Mr. RODGERS. It is an excellent question. I think evidence is in that in many cases consumers, industrial purchasers do not always see the life-cycle cost benefits of adopting energy efficiency technologies and best practices. And so we have seen in many cases where in the Energy Policy Act of 2005, or at the State level or at the utility level, that incentives can help consumers and businesses overcome those first thoughts and yielding net savings to the economy from the adoption of the energy efficiency.

Mr. PICKERING. Do you think incentives can help the Department of Energy meet its deadlines if we were to adopt a number of deadlines in this? And by that, for example, I know each agency has bonus performance payments that we give from Senior Executive Service all the way through the lower ranks. What are the bonuses at the Department of Energy? Do you know? Can you quantify what the bonuses are?

Mr. RODGERS. I am not in a position to respond to those questions which are primarily in the personnel department, but on the subject of bonuses, I have already said this before, I really want to work with the committee on this subject for Federal employees.

Mr. PICKERING. But, Mr. Rogers, what we like to do, I don't always agree with Mr. Markey. Many times we disagree, but I think it is a legitimate issue that there are 34 deadlines that have come and gone without being met, and to be honest, we are seeing this across bureaucracies across the Government. And maybe it is time for this committee to say that bonuses will be tied to the compliance with congressional deadlines of doing their work, because maybe if incentives work for the private sector, I think incentives as part of human nature, it works in the Government sector as well.

And, Mr. Chairman, I would like to work with you to possibly tie bonus performances to comply with congressional deadlines. That is one way to make sure that all of us do our job.

And in closing, Mr. Birnbaum, would you want any definition in this legislation of what a smart grid would be?

Mr. BIRNBAUM. Yes, Congressman. We think that the definition should be broader than just smart metering or low-control devices, but a fully-automated network. As I mentioned during my testimony a full, two-way, high-speed communications network through which the utility can monitor and manage the devices all along the grid.

Mr. PICKERING. And would you want that to be competitively and technologically neutral?

Mr. BIRNBAUM. Yes.

Mr. PICKERING. Thank you very much.

Mr. BOUCHER. Thank you very much, Mr. Pickering.

The gentlewoman from Wisconsin, Ms. Baldwin, is recognized for 5 minutes.

Ms. BALDWIN. Thank you, Mr. Chairman.

I am going to start on the provisions in the draft on industrial energy efficiency, waste energy. Ms. Callahan, in your written testimony you commend the committee on its draft provisions on industrial energy efficiency. You don't go into a lot of detail, and so I am wondering if we can get you to elaborate a little bit on the benefits of creating a database that quantifies the industrial waste energy for major industrial combustion services, and also we were aware that concerns have been raised about language in the subsection that would allow industrial sites to sell their excess power.

Ms. CALLAHAN. Yes.

Ms. BALDWIN. And so I am wondering if the Alliance to Save Energy supports the language as it currently stands, or if you have suggestions for the committee of any alternative ways we can provide a use for the excess power, make sure that it is not wasted, and address the concerns that have been raised.

Ms. CALLAHAN. We haven't taken a position yet as an organization on what to do with the excess power. It is just not something that has been raised or considered. We have on our board of directors competing interests that do have great concerns; utility representatives as well as environmental representatives. So it is something that we will need to take to them and work with.

With respect to a database, though, one of the things that we have found is information is key to getting people to take action on energy efficiency, so the more that is there, the more readily available it is, the more action that will be taken. And what we are seeing particularly on the industrial side when you have leaders like Dow Chemical, and you have Wal-Mart and others taking action, other businesses take notice, and then they in turn, that leadership engenders more activity.

So the database, I think, is a very important tool for making sure that the information is made available.

Ms. BALDWIN. Mr. Rogers, you note in your written testimony that the discussion draft only covers a small part of a wider industrial energy efficiency need and opportunity. And I wonder if you could elaborate on some of the things we haven't addressed that are opportunities out there.

Mr. RODGERS. I very much appreciate the question. As a former manager of our industrial technologies program, it is easy to sometimes be ignored because buildings are everywhere, everyone lives in a building, everyone drives a car, not everyone operates a steel facility or another facility, but it provides currently 30 percent of our energy consumption, equal share of our greenhouse gas emissions. There are significant opportunities to apply energy-saving technologies and best practices. We continue to invest heavily in research and development on new energy technologies, and I would be very welcome to work with the committee and brief you on some of our existing activities such as the Save Energy Now audits that found more than 10 percent savings on 200 industrial facilities in the last year, our industrial assessment centers, and our existing regional assessment centers that promote combined heat and power.

Ms. BALDWIN. On the issue, I raised the issue in my opening statement of standby power and estimates that it accounts for as much as 10 percent of our household power consumption. We had a hearing earlier on the appliance efficiency standards, and at that hearing the Consumer Electronics Association testified that they supported an expedited process for creating standby standards for external power supplies.

And so the first question is do you agree that it is possible to expedite the standard? I place that question to Ms. Callahan.

Ms. CALLAHAN. We would hope that the standard would go as quickly as possible. I mean, whether or not it is expedited through DOE is really a question for Mr. Rogers, but we would work on that, and I just note, it is 10 percent, but it also is a growing share.

Ms. BALDWIN. Right.

Ms. CALLAHAN. So we really need to tackle it.

Ms. BALDWIN. Mr. Rogers, any comment?

Mr. RODGERS. I agree that the standby power, consumer electronics, very important and growing part of our energy consumption—mandated under the statute and the administrative procedures, it could be awhile, and we would urge consideration of the Secretary's fast-track legislative proposal for consensus rulemakings, and we would look forward to working with all the stakeholders to see if the consensus approach might work for those type of products.

Ms. BALDWIN. Then I just want to end with standby power crosses certainly hundreds of, if not thousands, of appliances and not just those with external power supplies. So it is difficult to keep a list of all appliances using standby power up to date.

And I wonder if, Ms. Callahan, would you support an across-the-board standard, for instance, a 1 watt standard that includes exceptions for certain products where it is not feasible to reduce the standby power consumption, for instance, medical devices?

Mr. CALLAHAN. I am sorry, but I am not prepared to answer that today. We need to look at it, and I apologize for that, but we certainly will get back to you. In general, we support all standards that are shown to be cost effective and are technically doable. I don't see a real problem with it, but I would want to ask our experts in-house as to exactly what the proposal is and whether or not we can endorse it.

Ms. BALDWIN. Thank you.

Mr. BOUCHER. Thank you very much, Ms. Baldwin.

The gentleman from Arizona, Mr. Shadegg, is recognized for 5 minutes.

Mr. SHADEGG. Thank you, Mr. Chairman, and I want to thank you for this entire series of hearings. I think they have been very educational, I think the witnesses have been superb. I certainly have learned a great deal. I want to thank our witnesses today.

I believe there is a lot of good, reasonable, and sound proposals in the draft, discussion drafts and I am encouraged by the fact that I think we can do some good things. I would hope that at some point we can look at the issue of transmission line siting which is one of the issues that was raised here with discussion about wind-mill energy being able to be produced in Texas but not being able to get it to market. And I would hope we could also at least con-

sider the issue of new source review, because new source review was cited as another example of where we might make energy production more efficient but for reasons of, I guess, bureaucratic fear or regulatory fear, we aren't going to do that. So I hope those will be on the table in the future.

Mr. Rodgers and Ms. Callahan, I would like to ask you each in pursuing my education on energy and energy efficiency, I commented to a paper home in Arizona, you show me a politician that is not interested in efficiency, and I will show you a politician that is not interested in staying in office very long. So I commend you for your efforts.

One of those discussions or a number of those discussions have led me back home to a kind of an inconsistency, and that is most of the large buildings built in America are built and owned by one entity.

Ms. CALLAHAN. Yes.

Mr. SHADEGG. Operated by a second entity.

Ms. CALLAHAN. Right.

Mr. SHADEGG. And builders seem or builders/owners seem not to have that incentive to care about the efficiency of the building.

Ms. CALLAHAN. Right.

Mr. SHADEGG. Somebody else is operating it, they pass the costs onto the tenants, the tenants eat the cost, and pass them onto their customers. Now, obviously, one way and Mr. Rogers, I apologize for missing part of your testimony and being late but I had other things going on, one of the options for that, of course, is building codes, looking at the future building codes which might make these buildings more efficient. That I think is at least one option, though sometimes I worry about political agendas being advanced in building codes.

I guess my question of you, for you is No. 1, do you agree that that is an issue, kind of the advertence between the incentives, between the tenants and operator using a building and the builders who build the building, and second, have you looked at other incentives that this Congress might be including in this legislation which would incentivise builders both to produce efficient buildings in the future but also to retrofit the buildings we have at the moment?

Mr. RODGERS. That is a very good question, sir, and our laboratories and scientists even have a name for the problem. It is the problem of agency, in that the owner and the operator are different from the builder. Certainly the Energy Policy Act of 2005, and the incentives provided to the commercial builders for adopting energy efficiency have made a dramatic impact. We also believe that the current promotional efforts by many to adopt green building standards such as the U.S. Green Building Council, are having a demonstrable affect. Energy Star Program—those programs, as well as codes, are going to be critical to address the problem that you have identified.

Mr. SHADEGG. Have you looked at—

Ms. CALLAHAN. Can I do to—

Mr. SHADEGG. Sure.

Ms. CALLAHAN. We call it split incentives, and it is a critical concern, and there are two ways at least that you can attack it. One

is building codes. We are very supportive of the progressive or advanced building code that is in this bill that would require the code setting bodies to improve the building codes for both house and commercial buildings by 30 percent by 2010, and 50 percent by I think it is 2030. I am not familiar with that.

The second way is to provide incentives for the builders to build the buildings correctly the first go around, and EPACT 2005, has a set of very important incentives for both commercial buildings that give \$1.80 a square foot for efficiency improvements. That is for new construction and for existing buildings, and then there are an additional set of incentives for new homes and then for existing homeowners. We are hopeful, it is outside the jurisdiction of this committee, but we are working with the Ways and Means Committee to both extend those and expand those tax incentives, because I think it is going to take both. You need the building codes to continue to improve, but you also need to provide the incentives to get people to go beyond that threshold.

Mr. SHADEGG. I would certainly encourage that.

In the time I have left I want to go to you, Mr. Birnbaum. I had a load controller on my house in Phoenix, Arizona. We face a heat problem. It occurs late in the day, and say 8 years ago, maybe 15, 10 years ago, our local utility pushed very aggressively load controllers, and it makes a lot of sense. If you look at Phoenix, Arizona, and we have a huge peak demand at 3:00, 4:00, 5:00, 6:00, 7:00 p.m. before it begins to cool off in the evening, you do not want to be doing your laundry or running a dryer, clothes dryer, and other multiple appliances at the same point in time.

Well, regrettably, that has literally disappeared. At the home that I lived in at the time it got to where nobody bothered to adjust their load controllers anymore. They did not seem to produce savings, and there are thousands, I think, of load controllers in Arizona on homes that may not be used. And I guess I am curious why that is, and have you examined that, because it seems to make a lot of sense to me to encourage that kind of the intelligent use of electricity through the day, so that we don't have to build to the highest possible peak and so that people use electricity or energy wisely.

Mr. BIRNBAUM. Yes, Congressman, that is actually a common problem. I had the same thing 20 years ago. I was living in Washington, DC. The problem is twofold.

One, most of us don't have the time to really go program those devices. Two, what you need is a network, a smart grid if you will, that can communicate with those devices, therefore, all we have to do on one day is assign it to a program that says when the peak pricing gets this much or if load constraints hit this level, I give you authority to turn off my air conditioner or my pool pump or my dishwasher, whatever the case may be, for this amount of time or during these hours of the day. And as a result now a utility, rather than you and I trying to do it one device at a time, one home at a time, when we are not home, the utility now can do that by hundreds of thousands or millions of devices in homes. And that is the most effective way to use load controllers. That is why we think the smart grid is so important.

Mr. SHADEGG. My time has expired, but the chairman is busy with another conversation, so let me ask you a question.

What happens if they try to turn, let us say they decide, OK. I am going to turn off your air conditioning, but it just so happens that is the day you invited people over for a party.

Mr. BIRNBAUM. Absolutely.

Mr. SHADEGG. Does the smart grid allow you to override that as the consumer?

Mr. BIRNBAUM. Yes, it would. I mean, obviously the smart grid wouldn't know you were having a party, but you would have effectively an override button, and you have a consumer control device, a display or LED in your house where you can control all of those appliances.

Mr. SHADEGG. I think we need to stop this conversation. Thank you.

Mr. BOUCHER. Thank you very much, Mr. Shadegg, for your thoughtful and extensive questions.

The gentleman from Utah, Mr. Matheson, is recognized for 8 minutes.

Mr. MATHESON. Well, thank you, Mr. Chairman, and since I waived my opening statement, I do want to acknowledge your work and the process as well. It has been substantive, and it has been orderly, and as a new member of the committee, I really appreciate the fact that we are moving through this legislation the way we have with the discussion draft and a lot of input from other people. So I want to acknowledge that and your efforts in that regard.

Mr. Rogers, I had, want to ask you a question about commercial buildings and efficiency. It is my understanding that within DOE currently it is a rather limited R&D program right now for commercial buildings. What do you think would be the reaction of DOE to a proposal for public, private partnership that would be designed to measure energy performance of commercial buildings to assemble new ideas, the solutions, packages that could help address that? You know, examples would be big bucks retail, different climate regions.

How do you think DOE would respond to that type of proposal?

Mr. RODGERS. I appreciate the question very much, and not knowing the details of the specific proposal, I would just like to share with you that we are extremely supportive of public, private partnerships, and we see them as vital to allowing us to deliver an energy efficient technologies especially in the commercial sector which is so diverse. We have had partnerships with Wal-Mart, Home Depot, Lowe's, Petco, and other companies as they try to understand how to better apply energy efficient technologies. And I can't imagine us proceeding without public, private partnerships.

Mr. MATHESON. And one of the characteristics I just want to emphasize would be it would include creating abilities, it is the old thing I learned at business school. If you can't measure it, you can't monitor it, and right now I think that there is a real lack of the ability to measure energy use in the commercial building sector. The industrials have a big enough economic interest there doing it, but I don't know that it is happening in commercial.

So that would kind of be a component of this. It is creating a way to really be, upgrade our ability to measure energy use. Once we

can measure it, more rational decisions could be made, and I think that is, I assumed DOE would be comfortable.

Mr. RODGERS. If I understand where you are headed, I think so. I would just point out that energy service companies do a big, big business in the commercial buildings already, and they know what they are doing, and capital is available, and I think a part of what we are seeing is that we need to get building owners, operators, and developers aware of everything that is on the table that they can adopt to improve energy efficiency.

Mr. MATHESON. Right. Ms. Callahan, do you have any reaction to that type of proposal?

Ms. CALLAHAN. We have put together a proposal for a public, private partnership. We call it the Commercial Building Initiative and would love to come talk to you about it. We have been talking to the Department of Energy. It is actually included in the Senate version of the bill, and I think we may have gotten some appropriations yesterday in the House. So, we are very supportive of it.

Mr. MATHESON. OK. I appreciate that.

Mr. Rogers, one other question I wanted to ask you. In your testimony you mentioned DOE opposition to the removal of advanced rulemaking notices because these notices sometimes lead to better or faster rulemakings. Do you think, are there examples where the applied standards for that has resulted in faster rulemaking?

Mr. RODGERS. If I understand the question, we are not opposed to having the flexibility to skip the advanced notice.

Mr. MATHESON. OK.

Mr. RODGERS. What, one concern that can arise is during the advanced notice phase is where a significant amount of technical analysis is presented to the stakeholders to the public process. One issue that we want to make sure that we deal with appropriately and we look forward to working with the committee, is how can we continue to make that technical analysis available to the public even as we try to accelerate our rulemaking through the elimination of the steps.

Mr. MATHESON. OK. I appreciate the clarification on that.

Mr. Chairman, I yield back.

Mr. BOUCHER. Well, thank you very much, Mr. Matheson. That completes questions to this panel by all of the members of the subcommittee, and I, again, want to thank you for sharing your information with us today.

We will, as indicated, these questions have follow-up questions on several matters and would appreciate your prompt response to those.

And without objection there will be included in the record statements that have been submitted to the subcommittee by several organizations on the topics that have been addressed here today.

With that this panel is excused, and we thank you very much for your participation.

Mr. BIRNBAUM. Thank you, Mr. Chairman.

Mr. BOUCHER. And we welcome now the second panel to testify before the subcommittee this afternoon, and that is comprised of three witnesses: Ms. Katherine Fredriksen is the Principal Deputy Assistant Secretary for Policy and International Affairs at the U.S. Department of Energy, Mr. Don Maley is the vice president of

Leucadia International Corporation, and Mr. Daniel Lashof is the science director at the Climate Center of the National Resources Defense Council. We welcome each of our witnesses. Without objection your prepared written statements will be made a part of the record, and we would ask that your oral summaries be kept to approximately 5 minutes.

And I am just looking at who is ready. Ms. Fredriksen, are you prepared to deliver your statement to us?

Ms. FREDRIKSEN. Yes, sir.

Mr. BOUCHER. We will be happy to begin with you.

**STATEMENT OF KATHARINE A. FREDRIKSEN, PRINCIPAL DEPUTY ASSISTANT SECRETARY, POLICY AND INTERNATIONAL AFFAIRS, U.S. DEPARTMENT OF ENERGY, WASHINGTON, DC**

Ms. FREDRIKSEN. Thank you, Mr. Chairman and members of the committee for the opportunity to appear before you today to comment on the discussion drafts that you asked for us to look, to examine.

While we have not had sufficient time to coordinate our agency views on the legislation, I am prepared to offer some preliminary comments today.

Most of my remarks today will focus on the discussion drafts that are related to the Energy Policy Act of 2005, the title XVII loan guarantees, and a standby loan for coal to liquid projects.

First I am going to focus on the discussion draft to amend title XVII of EPACT, which contains a provision that would direct DOE to guarantee a loan amount that would likely attract non-guaranteed investments that are adequate to capitalize a project.

It further states that DOE may guarantee up to 100 percent of any loan or debt obligation for an eligible project and prevents DOE from issuing a rule or regulation of establishing a lower percentage limit.

The Department does oppose these requirements for several reasons. First, the provision which would direct DOE to establish a guarantee likely to attract non-guaranteed investments is vague and difficult to implement for the agency. The borrower working with its lenders we believe is in a better position to determinate the amount for which a guarantee is to be sought consistent with its business plan, its credit and capitalization requirements.

Second, the Department likewise opposes a limitation on its authority for rulemaking set forth in the provision. As reflected in our proposed rule published in the Federal Register on May 16, 2007, the Department believes that it should guarantee no more than 90 percent of any debt instrument in order to limit the risk being borne by taxpayers. We believe this is a sound prudent in addition to require the parties responsible for taking the financing to relieve some of the risk for the success of the project.

Federal credit policy states that the level of guarantee should be no greater than that required to achieve the policy goals. I note that some of the pre-applications we received in response to our first title XVII solicitation requested guarantees of less than 80 percent. The Department also notes that the greater the guarantee percentage for that instrument, the greater the subsidy costs that

must be paid by the borrower up front to secure a title XVII guarantee.

Next, I will turn to the discussion draft on standby loans for qualifying coal to liquid projects. We believe it makes valuable contributions to our national discussion to reduce consumption of petroleum and increase the availability of alternative fuels. A domestic coal-to-liquid industry would provide strategic and potential economic benefits to the United States.

CTL production using best available emission control technology would diversify our transportation fuel sources, reduce U.S. dependence on imported petroleum, and provide fuel with other benefits including potential easier control of nitrous oxide and particular emissions from vehicles that use those fuels.

Coal-derived liquid contains essentially zero sulfur and requires minimal upgrading to produce commercial grade premium fuels. They are also fungible with petroleum products. They can be distributed through existing fuel infrastructure.

Some recent studies have concluded that a commercially-mature coal-to-liquid plant could be competitive at today's high-world oil prices. CTL facilities would produce emissions comparable to modern, state-of-the-art coal gasification plants and could be configured to cost effectively capture carbon dioxide emissions, which if further sequestered would help address climate change concerns evaluations at the plant.

At the same time CTL can provide an added source of domestic supplies of liquid fuels to mitigate our country's dependence on foreign oil imports. Some of the captured CO<sup>2</sup> could potentially be used to enhance oil recovery fields, thus increasing our domestic fuel supply.

The Department's portfolio of research and development on CTL, biofuels, and other advanced technologies supports the prominence alternative fuel standard that will replace 15 percent of the projected gasoline use by 2017. This is an important element of the President's 20 in 10 Program to reduce gasoline use by 20 percent in 10 years.

The Department's efforts are focused on overcoming the barriers to adopting biofuels and other advanced fuels such as CTL through forging strategic, cost-shared benefits with private industry and collaborating with other agencies and State and local Governments. Combined with the financial tools already in place in the Energy Policy Act of 2005, we believe that this is a multi-pronged effort to help expand domestically-produced alternative fuels.

While we know that CTL plants have not been built today in the United States because of high volatility of world oil prices, high capital costs, and long lead time to associate with permitting and construction, we nonetheless believe that CTL has a viable role in our Nation's fuel infrastructure, and we have worked to bring those financial incentives, to bring down those technology costs and risks.

Regarding the proposed standby loans for CTL, the Department does believe that the Title XVII Loan Guarantee Program is a more cost-effective means of encouraging the development of CTL projects. The provisions included in the discussion draft provide a price floor for the producers, which could potentially provide enor-

mous liability for taxpayers and cause unwarranted distortions in the marketplace.

While we have significant concerns with the draft provisions, we would like to work with the committee to see incentives to support the domestic CTL industry. We believe the discussion drafts are a very good starting point and that all could benefit from further review and discussion and collaboration.

Mr. Chairman, I reiterate this was only a preliminary view, and we look forward to working with you to fine tune the proposed legislation to build on the success of EPAC 2005.

This will conclude my prepared remarks, and I will be happy to answer any questions.

[The prepared statement of Ms. Fredriksen follows:]

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STATEMENT OF

KATHARINE FREDRIKSEN

PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR POLICY AND  
INTERNATIONAL AFFAIRS

U.S. DEPARTMENT OF ENERGY

BEFORE THE

SUBCOMMITTEE ON ENERGY AND AIR QUALITY

COMMITTEE ON ENERGY AND COMMERCE

U.S. HOUSE OF REPRESENTATIVES

May 24, 2007

Mr. Chairman and members of the Committee, thank you for the opportunity to testify before you today on the Discussion Drafts you have circulated for comment. While the Administration has not had sufficient time to coordinate interagency views of the draft legislation, I am pleased to offer some preliminary comments. This means that the Administration has no formal position on the bill and may take a position at a later date based on the entirety of the legislative package. Most of my remarks are focused on the Discussion Drafts related to the Energy Policy Act of 2005 (EPACT), Title XVII Loan Guarantees, and Standby Loans for Coal-to-Liquids Projects.

The Discussion Draft on amending Title XVII of EPACT contains a provision that would direct DOE to guarantee a loan amount that would likely attract non-guaranteed investments that are adequate to capitalize a project. It further states that DOE may guarantee up to 100 percent of any loan or debt obligation for an eligible project and prevents DOE from issuing a rule or regulation that establishes a lower percentage limit. The Department opposes these requirements for several reasons. First, a provision which would direct DOE to establish a guarantee likely to attract non-guaranteed investments is vague and difficult to implement. The borrower, working with its lenders, is in a better position to determine the amount for which a guarantee is to be sought consistent with its business plan, credit and capitalization requirements. Second, the Department likewise opposes the limitation on its rulemaking authority set forth in the provision. As reflected in its proposed rule published in the Federal Register on May 16, 2007, the Department believes that it should guarantee no more than 90 percent of any debt instrument in order to limit the risk being borne by taxpayers. In addition, it is prudent that the parties

responsible (such as those undertaking the financing) for the success of the project bear at least some risk. Federal credit policy states that the level of guarantee should be no greater than that required to achieve the policy goals. Some of the pre-applications received in response to the first Title XVII solicitation requested guarantees of less than 80 percent. The Department also notes that the greater the guarantee percentage for a debt instrument, the greater the subsidy cost that must be paid by the borrower up front to secure a Title XVII guarantee.

The Discussion Draft on Standby Loans for Qualifying Coal-to-Liquids Projects makes valuable contributions to our national discussion to reduce consumption of petroleum and increase the availability of alternative fuels. A domestic Coal-to-Liquid (CTL) industry would provide strategic and potential economic benefits to the United States. CTL production would diversify our transportation fuel sources, reduce U.S. dependence on imported petroleum, and provide a fuel with other benefits, including the potential of easier control of nitrous oxide and particulate emissions from vehicles using these fuels. It will be important to incorporate state-of-the-art air, water, and waste mitigation technologies to ensure that the fuel production plant is not a major source of environmental pollution. Coal-derived liquids contain essentially zero sulfur and require minimal upgrading to produce commercial-grade premium fuels. They are also fungible with petroleum products which enable them to be distributed through the existing fuels infrastructure.

Some studies have concluded that a commercially mature CTL plant could be competitive at today's high world oil prices. CTL facilities would produce emissions comparable to modern, state-of-the-art coal gasification plants and could be configured to cost-effectively capture carbon dioxide emissions, which, if sequestered would help address climate change concerns of emissions at the plant. At the same time, CTL could provide an added source of domestic supplies of liquid fuels to mitigate our heavy dependence on foreign oil imports. Some of the captured CO<sub>2</sub> could potentially be used to enhance oil recovery fields, thus adding to our domestic fuel supply.

The Department of Energy's portfolio of research and development on CTL biofuels and other technologies supports the President's proposed Alternative Fuel Standard (AFS) that will displace 15 percent of the projected annual gasoline use by 2017. This is an important element of the President's "20-in-10" program to reduce projected gasoline use by 20% in 10 years. The Department's efforts are focused on overcoming the barriers to the adoption of biofuels and other alternative fuels, including infrastructure, through forging strategic cost-shared partnerships with private industry, and by collaborating with other agencies, and state and local governments. Combined with the financial tools already included in Energy Policy Act of 2005 (EPACT 2005), we believe that this multi-pronged effort will expand the role of domestically produced alternative fuels.

While CTL technology is economically competitive with today's high oil prices, CTL plants have not been built to date because of the high volatility of world oil prices, high capital costs and long lead times associated with permitting and construction, among

other reasons. DOE has supported the use of financial incentives that are carefully designed and targeted.

Regarding the proposed standby loans for CTL projects, the Department believes that the Title XVII loan guarantee program might be a more cost-effective means of encouraging the development of CTL projects. Such provisions would provide a price floor for the producers and as such could produce enormous liability for the taxpayers and unwarranted distortions in the marketplace. We have significant concerns with the proposed standby loan program, and therefore would like to work with this Committee on the appropriate incentives for supporting the domestic CTL industry.

While the Discussion Drafts are a good starting point, we believe they all could benefit from further review, discussion, and modification. Mr. Chairman, again, I reiterate this is a very preliminary review, and the Administration's formal position on the entire energy package will depend on the extent to which the concerns that have been raised have been resolved. The Department looks forward to working with the Committee to fine-tune the proposed legislation.

This concludes my prepared remarks, and I would be happy to answer any questions the Committee members may have.

Mr. BOUCHER. Thank you very much, Ms. Fredriksen.  
Mr. Maley.

**STATEMENT OF DON MALEY, VICE PRESIDENT, LEUCADIA  
INTERNATIONAL CORPORATION, NEW YORK, NY**

Mr. MALEY. Thank you very much, Mr. Chairman. I appreciate the opportunity to come and talk to you today about your coal-to-liquids legislation. I consider it a bold and responsible plan to help kick start the development of a coal-to-liquids industry in the United States.

When we look at the specifics of the legislation, as I have testified before, we believe the floor price mechanism will provide the required assurance that the investment community will need in order to develop and invest in these projects. We look at the repayment mechanisms in the package as an appropriate measure to mitigate the cost of the program and ultimately to have no costs of the program for the Federal Government because the project will pay the upfront Government costs.

With respect to the CO<sup>2</sup> sequestration plan, which is prominent on everybody's mind today, we view the plan as a significant challenge for the industry but one that we are prepared to commit to and one that we are prepared to implement as part of any investment that we might make to the program.

One point that I would like to make in that regard is that there seems to be a broad interest in the development of sequestration technology, and one of the prerequisites for implementing a sequestration technology is the actual capture of CO<sup>2</sup>. The only plant that I am aware of today in the United States that actually captures its CO<sup>2</sup> in a pure form is the North Dakota Gasification Project that sells its CO<sup>2</sup> quite profitably for enhanced oil recovery. If we are going to advance the whole question of sequestration, we need to actually build some projects that capture CO<sup>2</sup> and that allow us to then take that CO<sup>2</sup> and implement it in the sequestration plan.

The projects that Leucadia is developing in this area, all have a sequestration plan as part of the conception, and we will be actively developing that as part of our overall development of the project.

The other thing specific to the coal-to-liquids technology is that it does have environmental benefits with regards to the emissions of criteria pollutants. We are developing a project in Illinois and working with the city of Chicago, that has zero sulfur emissions and the lower particulate emissions which have an immediate health benefit to that market. Chicago is a serious non-attainment market, and they see the introduction of coal-to-liquids project manufacturing transportation fuels as an immediate benefit to their local community. The city of Chicago is actively encouraging the development of our project.

[The prepared statement of Mr. Mr. Maley follows:]

Written Statement of Donald W. Maley  
Vice President  
Leucadia National Corporation

Before the  
House Subcommittee on  
Energy and Air Quality  
Energy and Commerce Committee  
U.S. House of Representatives  
May 24, 2007

**I. BACKGROUND – LEUCADIA NATIONAL CORPORATION:**

This written statement is submitted by Leucadia National Corporation (LUK), a New York Stock Exchange company with a market capitalization of approximately \$6.0 billion. Leucadia is a diversified holding company with headquarters in New York City, corporate operations in Salt Lake City and San Diego and affiliate operations throughout the world. The company focuses primarily upon “value investments,” that is, investments that are judged to create long-term and sustained value. The portfolio of projects and companies that constitute the majority of Leucadia’s holdings represent our strategy to focus upon these long-term investments. For nearly three decades this strategy has resulted in a compounded annual return to shareholders of greater than twenty percent. LUK has holdings in such diversified investments as energy, mining, timber, communications, banking, insurance, manufacturing, healthcare, and real estate.

**II. LEUCADIA'S INVOLVEMENT IN GASIFICATION:**

For the last several years, Leucadia has undertaken a comprehensive examination of investment opportunities in various emerging energy-related industries, particularly those related to the gasification of coal and other carbon-based fuels. Currently, the company is evaluating potential involvement in several gasification-based projects that would utilize coal resources or petroleum coke to manufacture high value chemical feed stocks, substitute natural gas (SNG) and alternative transportation fuels, including zero sulfur diesel fuel, gasoline and jet fuel.

To assess the opportunities related to emerging gasification technology the company has assembled a group of experienced industry professionals with varied backgrounds related to the technical and financial aspects of gasification technology, major energy project development as well as market and environmental expertise.

Leucadia is actively developing several gasification projects. The first project is a polygeneration gasification project being designed to provide a slate of industrial chemicals as well as electricity generation for use at a Gulf Coast industrial site. A second project involves the use of gasification technology to manufacture pipeline quality substitute natural gas (SNG) that can be distributed and utilized in the same manner as conventional natural gas. Finally, we are actively pursuing a coal-to-liquids (CTL) project to be located near a large mid-western metropolitan area where demand for clean diesel fuel, gasoline and jet fuel is among the highest in the Nation. These alternative fuels could be generated from the large-scale project that we have under consideration.

**III. SIGNIFICANT RISKS ASSOCIATED WITH GASIFICATION PROJECTS:**

An assessment of technology risk and long term commercial risk must be thoroughly analyzed before Leucadia, or any investor, will make contributions.

**A. THE TECHNOLOGY RISK:**

There are 117 operating gasification plants with a total of 385 gasifiers in operation worldwide. These gasifiers are being used to produce synthetic gas used for making hydrogen for ammonia (agriculture use), transportation fuels by means of the Fischer-Tropsch process, and electricity.

What about the gasification projects we have under consideration? In the United States there is one “coal-to-chemicals” facility operated today by Eastman Chemical Company in Kingsport, Tennessee. The facility, which began operation in 1983, gasifies about 1,200 tons per day of central Appalachian medium sulfur coal into a syngas that is used to make a variety of industrial chemicals.<sup>1</sup> The Great Plains Synfuels Plant, operated by Dakota Gasification Company in Beulah, North Dakota, began operations in 1984 and is currently the only coal to substitute natural gas facility in operation in this country. This facility converts 16,000 tons per day of North Dakota lignite into SNG, fertilizers and chemicals. Importantly, the CO<sub>2</sub> from this coal plant is captured, pressurized and transported by pipeline some 200 miles to Saskatchewan, Canada and sold for use in enhanced oil recovery. Finally, the only large-scale coal-to-liquids facilities in the world are operated by Sasol in South Africa. These projects began operations in 1955 using Lurgi gasifiers and the Fischer-Tropsch process to convert the coal-derived syngas to

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<sup>1</sup> The Eastman Chemical facility manufactures methanol which, in turn, is the feedstock for producing gasoline. While the Fisher-Tropsch process is often cited as the means by which liquids (e.g. transportation fuels) are derived from the gasification of coal, the Kingsport facility represents an alternative approach to the production of gasoline-from-coal.

liquid fuels. Today these facilities process about 90,000 tons of coal per day into 150,000 barrels per day of liquid fuels.

It is important to understand that while there is a great deal of developmental activity underway in the United States and worldwide to apply gasification technology to the production of SNG, chemicals and alternative fuels, there are limited developed markets and as a result Wall Street is skeptical.

With respect to our projects what distinguishes the polygeneration and SNG projects from the CTL project is the degree of certainty that the underlying gasification technology can be utilized successfully to manufacture industrial chemicals or synthetic natural gas (SNG). While the proposed CTL project would utilize gasification technology as well there is only one commercial scale CTL facility in operation in the world compared to many gasification units in operation worldwide producing chemical feedstocks and SNG. Furthermore, a CTL project is much larger and more costly and the level of certainty within the financial community about a dependable and sustained market for coal-to-liquids is much less certain.

To address the technical risks associated with gasification as perceived by Wall Street and to finance any large-scale project using gasification technology today we will require significant guarantees and warranties from creditworthy suppliers and construction/engineering firms. The costs for equity and debt in these projects will depend directly upon the level and form of those guarantees as well as the entities providing them. In the case of a large scale (at least 20,000 barrels per day of crude oil equivalent) coal-to-liquids facility, where there is but one commercial sized facility currently in operation in the world, funding will be very difficult to obtain unless

technical risks are adequately addressed and long term price certainty for product offtake has been assured.

**B. THE COMMERCIAL RISK OF MARKET PRICE VOLATILITY:**

The biggest issue for the financial community with respect to CTL projects is long term price certainty for product offtakes.

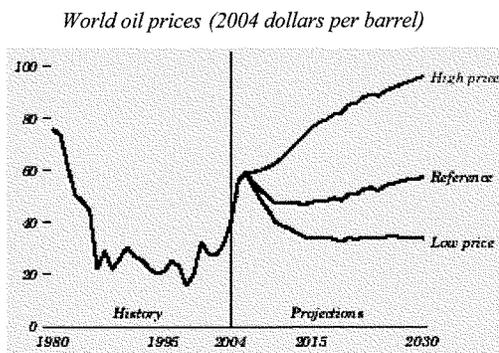
We have found strong interest in the marketplace for long term contracts for the products of our polygeneration and SNG projects. We believe industrial customers of chemical feedstocks and utility customers of SNG are looking for a hedge against natural gas price volatility and by creating greater price stability through the purchase of product offtakes from our projects they can establish, in turn, more predictable commodity prices for their operations and/or their customers. This need for greater price stability means that our polygeneration and SNG projects enjoy a high degree of certainty with respect to future markets as well as product prices. This certainty exists for both the short term and the longer term and thus there is a strong basis to obtain project financing.

On the other hand the alternative fuels from a CTL project must compete in a volatile market where crude oil prices are essentially controlled and the crude oil market is not a free, open market. This last point is critical. Crude oil markets are controlled by OPEC. When supply is short, they can drive the price up to \$60-70 per barrel or higher and extract rent unrelated to the cost of developing and producing their product. An American CTL program would create an alternative and signal to the market that this extraordinary rent is not justified. The response of OPEC might well be to drive the price of oil below a CTL breakeven price to crush the potential competition. The marginal cost to produce a barrel of OPEC oil is well below \$15 per barrel so a few CTL projects

standing alone could never survive a predatory pricing attack by OPEC. Some would argue that this fact demonstrates that CTL projects are unjustified as they cannot compete. In a truly free market, free of politics and national security issues, we might well agree with this argument. Current events around the world, however, strongly suggest that the trend unfortunately is moving further away from free markets for oil and gas. It is imperative that the United States and other coal rich nations develop alternatives to this monopoly control. To do so, we need to address the technology challenges, financing challenges and environmental challenges associated with a CTL project.

In the liquids market, unlike the SNG and coal-to-chemicals markets, the desire for price certainty, does not resonate with potential buyers of our alternative fuels output. One exception is the airline industry which is clearly seeking predictably priced fuel. Unfortunately, it is not possible at this point to develop a CTL project based on jet fuel offtake as the certification of jet fuel from a CTL project can come only after the project is up and running and the jet fuel is demonstrated to meet all specifications. This is a classic chicken or egg dilemma. Even if our CTL project were to sign purchase agreements, it is highly unlikely that such agreements will extend beyond a couple of years and certainly not for the operational lifespan of the project. For these same reasons, coal-to-liquids projects, in our view, will not be able to acquire long-term financial hedges to address the price volatility in the crude oil market. This uncertainty means that a large scale CTL project will be difficult or impossible to finance. If ultimate financeability is not assured, project developers like Leucadia, will be unwilling to commit the \$30-50 million per project of development capital required to get a project to the point where long term financing can be obtained and construction can commence.

When Leucadia evaluates the market risk presented by the volatility of world oil prices, the risks are truly daunting. The figure below charts the historical crude oil price record and the range of EIA projections for the next 25 years.



Source: EIA Energy Outlook 2006

The literature on coal-to-liquids projects, and our own analysis of the technology and project potential, concludes that a barrel of oil equivalent produced by a coal-to-liquids facility (whether zero-sulfur diesel fuel by the Fischer Tropsch process or gasoline by converting coal first to methanol) might range in cost from \$40 to \$50 per barrel. With oil trading at above \$60 per barrel, coal-to-liquids facilities become attractive investments. Because crude oil prices are not determined in a free market and as OPEC has demonstrated many times over the last thirty years, the market power of the producing nations easily dictates world prices. While EIA and others project sustained higher prices for a barrel of crude oil, the fact remains that prices can be dropped dramatically and intentionally.

More than sixty percent of this country's oil and finished petroleum products are being imported today, and there is a growing demand for even more transportation fuels.

If we are to avoid becoming ever more dependent upon imports there is a compelling rationale for U.S. federal government involvement to assist the fledgling coal-to-liquids, as well as other home grown alternative fuels, industries.

**IV. ASSESSMENT OF GOVERNMENT FINANCIAL INCENTIVES DESIGNED TO ASSIST NEW TECHNOLOGY DEPLOYMENT:**

What should be the form of government involvement to help in addressing the risk of very volatile markets?

First, federal loan guarantees to support the considerable debt required to construct large scale coal-to-liquids projects, which require \$1.0 to \$3.0 billion for projects in size from 10,000 to 30,000 barrels of oil equivalent per day, are very important in our judgment to lower the cost of debt and provide the financial community with a level of assurance – through federal government support of the project -- that their perceptions of the risks associated with CTL technology can be managed. Without such government support, the ability to raise financing for the first generation of U.S. coal-to-liquids projects at a size that will achieve economies of scale is difficult at best and probably not possible.

Moreover, while loan guarantees are an excellent mechanism to assist in the management of technology risk or as a means to raise low cost financing that will ultimately result in lower commodity prices, they do not address market price risk.

If oil prices fall below breakeven, the loan will default, the federal guaranty will be called and the federal government will be left to unravel the problems of a failed or seriously burdened project. We believe a price support mechanism, discussed below, is

better suited to manage this price risk, ensure long term project sustainability and ultimately provide a near zero cost to the federal government.

Second, outright government grants similar to the DOE project demonstration grants provided through the Clean Coal Power Initiative would not address the long-term price volatility issue. It is unlikely that there will be a sufficient amount of federal dollars ever available to provide cost-sharing towards a CTL project that will exceed \$1.0 billion in costs.

Third, investment tax credits, if provided in significant volume will be attractive to the equity investor in a project because such credits relate to an immediate recoupment of some or all of the up front equity. It is important to weigh the generosity of an investment tax credit with the need for the long term commitment of the equity investor to remain active in the project. If a project experiences a drop in product prices where the tax leveraged rate of return on equity drops significantly below a minimum rate, the commitment of the equity investor diminishes or vanishes and the project may be abandoned.

Likewise, production tax credits, along with measures that allow taxpayers to rapidly depreciate or expense costs, all serve to lower the effective price of the products from a project, which can make the project more competitive if market prices fall, but do not provide needed certainty that the project's products will be competitive under all conditions in the face of highly volatile prices. Conversely, if market prices are high, these incentives, including the production tax credit, unnecessarily improve project economics when the economic boost is not needed. The bottom line is that production tax credits improve project economics, but do not get at the core problem facing CTL

projects, which is exposure to volatile oil prices that are not governed by free market economics.

**V. H.R.2208– PRICE FLOOR LOANS FOR CTL PROJECTS:**

Leucadia supports the concept embodied in legislation (H.R. 2208) introduced by Chairman Boucher and Mr. Shimkus as a straightforward mechanism to address market price volatility.

This legislation, if enacted, would mitigate the product market risk directly through a federally-backed price floor or price guarantee which would permit a project to rely on a predetermined price for its product. Under a price floor or price guarantee the government would be authorized to issue price guarantees to a coal-to-liquids project that would be intended to insulate the project from downside price risk in the world crude oil market. If the guarantees were triggered by a drop in world crude prices (a possibility in a market that is essentially controlled by oil producing nations) below an agreed upon price, the qualifying coal-to-liquids project could receive price guarantee payments. The payments made are loans to be repaid.

Specifically, the Boucher /Shimkus proposal, unlike other proposed price floor mechanisms is coupled with an agreement between the project and the federal government under which the project would commit to making payments to repay the loans if/when the prevailing market price exceeds an agreed upon price cap.

In effect, the coal-to-liquids project would be offered a mechanism whereby a jointly determined “price band” would be recognized. While product is sold within that price band the project, presumably, is operating within its projected economic viability. As we understand the legislative proposal, if the market price were to fall below the

lower end of the price band, the project could receive a payment from the government for the product actually produced from the project. If at any time during the course of the agreement, prices were to exceed the upper levels of the band, then the government would receive payment from the project as repayment for any prior disbursements. In addition, it is our view that if or when prices rise above the “cap” and are not required to repay prior disbursements by the government, these revenues represent a level of return not expected by the project and such “profits” should be shared with the government where the government has assumed a potential downside risk. It should be noted that the Boucher/Shimkus proposal provides specific authority to the Secretary to enter into this type of “profit-sharing” arrangement with the project.

If the price band is set correctly, the probability that prices will drop below the agreed upon floor will be equal to, and no greater than the probability prices will rise above the cap. The revenue impact to the Federal treasury should be zero. Like the loan guarantee program authorized by Title XVII of the Energy Policy Act of 2005, this proposal also includes a self-funding mechanism that requires the project to make an upfront payment to the government for the “cost” of the loan as determined by the OMB. In this regard, it is vitally important, if this mechanism is to work, that the calculation of “upfront cost” be transparent. Given the historical uncertainty that has attended the market price of crude oil, there will be hesitation, we suspect, over the ability to predict long term prices. We believe there are models available to provide that greater certainty and that the government should work with industry in the design of the program to utilize those models. In addition, there is a requirement in Boucher/Shimkus that provides an added safeguard to the government. If, at the end of the primary term of the loan

agreement (the 20 year period during which disbursements may be made to the project) there remains any outstanding loan balance, such amount, with interest, is required to be amortized and paid in full during the remaining term of the agreement.

Several more elements should be designed into the program to avoid uncertainty and also assure the program's rapid and successful implementation with credit worthy participants. These design elements include the following:

A prohibition on "double dipping" of federal incentives is also included. If a loan guarantee is in effect for a project the price floor mechanism is not available. However, it may be appropriate, and indeed necessary, for a project to utilize a loan guarantee to support construction of the project. The price floor mechanism would then be used at commencement of commercial operations after the loan guarantee for construction is no longer in effect.

This program cannot be dependent upon the stop and go, stop and go nature of government programs similar to the production tax credits available to renewable energy projects. It is possible that this might occur if after the authorization of the program, it is judged that further Congressional action is required; for example, action by the Congressional appropriations committees to authorize ceilings as is currently the case with the Title XVII loan guarantee program. At a minimum, if a project is judged to be revenue neutral, then some statutory language should be included to allow the project to proceed after a specified layover period for any Congressional review.

It will be necessary to address the issue of CO<sub>2</sub> emissions from coal-to-liquids plants.

The science appears compelling and where Leucadia is engaged in a number of gasification projects we are mindful of the need to address this important concern. We are currently reviewing mechanisms to capture various amounts of CO<sub>2</sub> emitted and to determine how best to use the CO<sub>2</sub> or enable long term storage. Liquefaction plants generate carbon dioxide in a highly concentrated form and we are confident that both capture and use or storage can be accomplished.

We also support broad based public policy programs that promote the continued development of carbon capture sequestration technology, encourage market based solutions to the issue and spread the initial cost of development across the entire economy so that we can advance the technology needed to address this most urgent concern. The potential of using coal, petcoke or other carbonaceous fuels to produce significant quantities of domestically controlled alternative fuels is so great that every effort should be made to encourage development of several pioneer projects. Secondly, and equally as important, the production and use of zero sulfur diesel fuel, particularly in our Nation's non-attainment metropolitan areas, should be carefully weighed as a benefit to our environment. The totality of the environmental impacts of a given project should be given great weight. Leucadia has done considerable analysis on the environmental benefits of using products like zero sulfur diesel fuel in a major metropolitan area where our project might be located and our products used. We would be happy to make that analysis available to the Committee.

## **VI. CONCLUSIONS**

The legislation introduced by Chairman Boucher and Mr. Shimkus addresses the major concern we see to financing a coal-to-liquids project.

Other forms of government incentives may be helpful to other projects, but Leucadia has determined that loan guarantees to assist during construction and loans that might be called upon if or when prices dip below an agreed upon price floor are the two critical needs for financing CTL projects. If applied correctly neither form of assistance should cost taxpayers anything yet the assistance allows these types of projects to move forward in a market where prices are controlled by outside forces.

It is important to emphasize that any price floor loans are to be repaid. As noted earlier, the proposal requires that price floor loans are only available for a portion of the project's life and if loans are outstanding at the conclusion of the loan program any outstanding amounts must be repaid during the continuation of the project. In addition, we support the concept of sharing profits with the government where prices exceed a price cap; if the government assists the project during a period of depressed prices, it should expect to share in the profits of increased price periods. Of course depressed crude oil prices means that the U.S. economy is enjoying lower prices and when the U.S. consumer is required to pay higher market prices for crude oil, the government, under this program, at least, will share in the profits occasioned by those high prices.

We strongly support the legislation introduced by Chairman Boucher and Mr. Shimkus and urge its enactment.

Mr. BOUCHER. Thank you very much, Mr. Maley.  
Dr. Lashof.

**STATEMENT OF DANIEL A. LASHOF, SCIENCE DIRECTOR, CLIMATE CENTER, NATIONAL RESOURCES DEFENSE COUNCIL, WASHINGTON, DC**

Mr. LASHOF. Thank you, Mr. Chairman. It is a privilege to appear before the committee again.

As you know, Speaker Pelosi has committed to passing groundbreaking legislation that addresses global warming and energy independence in this Congress, and while I recognize as you stated earlier that the primary goal of the legislation we are hearing today is the energy security component of that. I believe that it is nonetheless essential to evaluate the proposals we are considering in light of this longer-term objective.

In particular the U.S. Climate Partnership, which as you know, is a broad diverse group of leading companies, environment, and other public interest organizations has called on the Congress to pass legislation as quickly as possible and reducing emissions of greenhouse gases by 60 to 80 percent by 2050.

Any energy legislation enacted in this Congress should in my view at a minimum be consistent with and make a down payment on achieving that goal, even if its primary purpose is to reduce dependence on petroleum.

Before turning to the primary subject of this panel on the coal-to-liquids legislation, I would just like to echo the comments of Ms. Callahan in the previous panel. NRDC strongly supports the work they are doing on energy efficiency and particularly the energy efficiency standards, and I would just note that in particular the forcing function to insure that DOE meets its statutory deadlines is particularly important given their shameful record in missing deadlines as has been brought out previously in this hearing.

Unfortunately, I can't say the same thing about the coal-to-liquids provisions as you know. I would like to call your attention to two recent studies that have concluded that even if coal-to-liquids plans fully employed carbon capture storage, full lifecycle greenhouse gas emissions from using the fuels will still be worse than conventional diesel fuel, in particular Michael Wang of Argonne National Laboratory is the developer of the model that has been used by EPA and others to analyze different fuels on a consistent basis. He presented his findings to the Society of Automotive Engineers this week, and his study shows that without carbon capture the emissions could be as much as two and a half times as much as diesel fuel, but even assuming a high efficiency conversion process and carbon capture and storage, lifecycle greenhouse gas emissions from coal-to-liquid would still be 19 percent higher than using conventional diesel fuel.

Given that result it is not surprising that another recent study by Battelle found that a significant coal-to-liquids industry is simply not a good investment in the context of a program that is limiting greenhouse gas emissions to prevent the concentration from rising above twice pre-industrial levels or to a lower level, which I believe is needed.

Battelle found that, in fact, if there were no constraints on greenhouse gas emissions, a significant coal-to-liquids industry would make sense and would grow to replace conventional oil during the next several decades. But in the context of the need to significantly reduce greenhouse gases in their economic models coal-to-liquids does not develop, and instead, we would need to rely much more heavily on biofuels and efficiency to meet our transportation needs.

There has been some discussion on plug-in hybrid vehicles today. I just would reiterate my view that to use coal in the transportation sector the best pathway is through making electricity to go into plug-in hybrids. There is a huge potential there, and in fact, a ton of coal used for that, in that way could displace twice as much oil as using a ton of coal to produce liquid fuel. And the emissions on a graduate mile basis could be one-tenth as much as with liquid fuels.

As you know, Mr. Chairman, and I know you were none too pleased to receive a letter from NRDC and nine other environmental organizations opposing the provisions we are looking at today, we noted a number of things. I would highlight that in addition to reducing oil use, renewable fuels on the market today generate on average 20 percent lower greenhouse gas emissions than conventional fuels. And we urge that Congress adopt fuel alternatives that should be held to at least that standard.

Let me comment a little bit on the specifics of the legislative proposal you have out. I appreciate the fact that you put in the greenhouse gas performance standard.

Mr. BOUCHER. Well, Dr. Lashof, your time is almost expired, and we have votes pending on the floor, which will require our going over there. So could you wrap up in maybe 15 or 20 seconds, please?

Mr. LASHOF. I will do that. You authorized the use of CO<sup>2</sup>. We have no objection to using CO<sup>2</sup>, but an environmental benefit should only be assigned if CO<sup>2</sup> is demonstrated to be permanently stored and kept out of the atmosphere.

The other point I would like to make is that your legislation calls on plants to have a plan certified by EPA. We believe it is essential to insure that the plan is actually carried out and that plants actually implement carbon capture and store it to be eligible for any program.

I will conclude there. Thank you.

[The prepared statement of Mr. Lashof follows:]



NATURAL RESOURCES DEFENSE COUNCIL

**Statement of**

**Daniel A. Lashof, Ph.D.**

**Climate Center Science Director**

**Natural Resources Defense Council**

**Before the**

**Committee on Energy and Commerce**

**United States House of Representatives**

**May 24, 2007**

**Summary**

- Any energy legislation enacted by the 110<sup>th</sup> Congress must, at a minimum, make a significant down payment on reducing global warming pollution. As Chairman John Dingell told the Detroit Economic Club last week, our nation must find an “effective way to reduce both petroleum consumption and greenhouse gas emissions.”
- NRDC strongly supports the energy efficiency provisions of the May 17<sup>th</sup> discussion draft. Increasing energy efficiency is the biggest, fastest, cheapest, and cleanest way to reduce global warming pollution. The forcing function to ensure that DOE meets statutory deadlines to promulgate energy efficiency standards is particularly important given the Department’s shameful past record of missed deadlines.
- NRDC supports the smart grid provisions of the May 17<sup>th</sup> discussion draft. Modernizing our electricity transmission system is an important enabler for cost-effective energy efficiency measures as well as expanded use of renewable energy and tracking electricity use in plug-in hybrid electric vehicles. The provisions to encourage states to align utility incentives with the public interest by decoupling revenues from electricity sales volumes recognize the critical need for this state policy to enable a substantial increase in utility sector energy efficiency programs. These programs are essential for energy efficiency achieving its potential for reducing global warming pollution.
- NRDC opposes the coal-to-liquid provisions of the May 17<sup>th</sup> discussion draft. Making liquid fuels from coal increases, rather than decreases, global warming pollution and is fundamentally incompatible with achieving the deep emission reductions that are needed to prevent dangerous global warming.
- A ton of coal used in a power plant employing carbon capture and storage (CCS) to generate electricity for a plug in hybrid vehicle will displace more than twice as much oil as using the same coal to make liquid fuels in a plant that uses CCS.
- A hybrid vehicle running on liquid coal will emit 10 times as much CO<sub>2</sub> per mile as a plug-in hybrid vehicle running on electricity made from coal, assuming that both the power plant and coal-to-liquids plant fully employ CCS.
- Congress should cap total greenhouse gas emissions from transportation fuels and require improvements in vehicle performance as well as progressive reductions in the average greenhouse gas emissions per gallon of transportation fuels sold, as California is planning to do.
- Congress should focus on setting performance standards for reducing both oil dependence and global warming pollution, rather than promoting any particular feedstock or technology.

**Introduction**

Thank you for the opportunity to share NRDC's views on the elements of energy legislation circulated by Chairman Boucher for discussion on May 17<sup>th</sup>. My name is Daniel A. Lashof, and I am the science director of the Climate Center at the Natural Resources Defense Council (NRDC). NRDC is a national, nonprofit organization of scientists, lawyers and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 1.2 million members and online activists nationwide, served from offices in New York, Washington, Los Angeles and San Francisco.

Speaker Pelosi has committed to passing "groundbreaking legislation that addresses global warming and energy independence" in this Congress. While I recognize that the legislation we are considering today represents only a first step toward meeting this commitment, it is nonetheless essential to evaluate these proposals in light of this objective. In particular, the U.S. Climate Action Partnership, representing a diverse group of leading companies and non-profit organizations, has called on Congress to pass legislation as quickly as possible aimed at reducing emissions of greenhouse gases by 60% to 80% from current levels by 2050. Any energy legislation enacted in this Congress should, at a minimum, be consistent with, and make a down payment on, achieving this goal, even if its primary purpose is to reduce dependence on petroleum. The energy efficiency and smart grid discussion drafts pass this test, but as I will explain, I believe that the coal-to-liquids discussion draft fails this test.

**Energy Efficiency and Smart Grid Provisions**

Increasing energy efficiency is the biggest, fastest, cheapest, and cleanest way to reduce global warming pollution. In general, NRDC strongly supports the energy efficiency provisions of the May 17<sup>th</sup> discussion draft. The forcing function to ensure that DOE meets statutory deadlines to promulgate energy efficiency standards is particularly important given the Department's shameful past record of missed deadlines.

Modernizing our electricity transmission system is an important enabler for cost-effective energy efficiency measures as well as expanded use of renewable energy and tracking electricity use in plug-in hybrid electric vehicles. In general, NRDC supports the smart grid provisions of the May 17<sup>th</sup> discussion draft. The provisions to encourage states to align utility incentives with the public interest by decoupling revenues from electricity sales volumes recognize the critical need for this state policy to enable a substantial increase in utility sector energy efficiency programs. These programs are essential for energy efficiency achieving its potential for reducing global warming pollution.

**Global Warming Pollution from Liquid Coal**

Two authoritative recent studies conclude that even if liquid coal synfuels plants fully employ carbon capture and storage, full lifecycle greenhouse gas emissions from using these fuels will be worse than conventional diesel fuel. There is a straightforward reason for this. Vehicle tailpipe CO<sub>2</sub> emissions from using liquid coal would be nearly identical to those from using conventional diesel fuel. Any CO<sub>2</sub> emissions released from the synfuels production facility have to be added to the tailpipe emissions. The residual

emissions from a liquid coal plant employing CCS are still somewhat higher than emissions from a petroleum refinery, hence lifecycle emissions are higher.

Last month, EPA released an analysis of lifecycle greenhouse gas emissions in conjunction with publishing its final rule to implement the Renewable Fuels Standard enacted in the Energy Policy Act of 2005. EPA's analysis finds that without carbon capture lifecycle greenhouse gas emissions from coal-to-liquid fuels would be more than twice as high as from conventional diesel fuel (118% higher). Assuming carbon capture and storage EPA finds that lifecycle greenhouse gas emissions from coal-to-liquid fuels would be 3.7% higher than from conventional diesel fuel.<sup>1</sup>

Last week Michael Wang of Argonne National Laboratory, the developer of the most widely used transportation fuels lifecycle emissions model, presented the results of his more detailed analysis of coal-to-liquid fuels to the Society of Automotive Engineers conference. The Argonne analysis shows that coal-to-liquid fuels could have lifecycle greenhouse gas emissions as much as 2.5 times those from conventional diesel. Even assuming a high-efficiency coal-to-liquids conversion process and carbon capture and storage, Argonne finds that lifecycle greenhouse gas emissions from coal-to-liquids would still be 19% higher than from conventional diesel (Figure 1)<sup>2</sup>.

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<sup>1</sup> <http://www.epa.gov/otaq/renewablefuels/420f07035.htm>

<sup>2</sup> M. Wang, M. Wu, H. Huo, "Life-cycle energy and greenhouse gas results of Fischer-Tropsch diesel produced from natural gas, coal, and biomass," Center for Transportation Research, Argonne National Laboratory, presented at 2007 SAE Government/Industry meeting, Washington, DC, May 2007.

Given these results, it is not surprising that a recent Battelle study found that a significant coal-to-liquids industry is not compatible with stabilizing atmospheric CO<sub>2</sub> concentrations below twice the pre-industrial value. Battelle found that if there is no constraint on CO<sub>2</sub> emissions conventional petroleum would be increasingly replaced with liquid coal, but that in scenarios in which CO<sub>2</sub> concentrations are limited to 550 ppm or below, petroleum fuels are replaced with biofuels rather than liquid coal (Figure 2)<sup>3</sup>.

### **Plug In Hybrid Electric Vehicles**

While I believe that there are better alternatives, if coal is to be used to replace gasoline, generating electricity for use in plug-in hybrid vehicles (PHEVs) can be far more efficient and cleaner than making liquid fuels. In fact, a ton of coal used to generate electricity used in a PHEV will displace more than twice as much oil as using the same coal to make liquid fuels, even using optimistic assumptions about the conversion efficiency of liquid coal plants.<sup>4</sup> The difference in CO<sub>2</sub> emissions is even more dramatic. Liquid coal produced with CCS and used in a hybrid vehicle would still result in lifecycle greenhouse gas emissions of approximately 330 grams/mile, or **ten times** as much as the 33 grams/mile that could be achieved by a PHEV operating on electricity generated in a coal-fired power plant equipped with CCS.<sup>5</sup>

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<sup>3</sup> J. Dooley, R. Dahowski, M. Wise, and C. Davidson, "Coal-to-Liquids and Advanced Low-Emissions Coal-fired Electricity Generation: Two Very Large and Potentially Competing Demands for US Geologic CO<sub>2</sub> Storage Capacity before the Middle of the Century." Battelle PNWD-SA-7804. Presented to the NETL Conference, May 9, 2007.

<sup>4</sup> Assumes production of 84 gallons of liquid fuel per ton of coal, based on the National Coal Council report. Vehicle efficiency is assumed to be 37.1 miles/gallon on liquid fuel and 3.14 miles/kWh on electricity.

<sup>5</sup> Assumes lifecycle greenhouse gas emission from liquid coal of 27.3 lbs/gallon and lifecycle greenhouse gas emissions from an IGCC power plant with CCS of 106 grams/kWh, based on R. Williams et al., paper presented to GHGT-8 Conference, June 2006.

**Specific Comments on the Coal-to-Liquids Discussion Draft**

As you know, Mr. Chairman, NRDC joined nine other environmental organizations representing millions of members and activists in a May 16<sup>th</sup> letter expressing our opposition to H.R.2208, which is the basis for the discussion draft provision. This letter is attached to my testimony for the record.

Our organizations urged Congress to promote efficiency and cleaner fuels that reduce emissions without adverse impacts on the health of our lands, air and water. We noted that in addition to reducing oil use, renewable fuels on the market today generate on average 20 percent less greenhouse gas emissions per unit of energy delivered and urged that other fuel alternatives should be held to at least as good a standard, with improvements in performance required over time.

I would add that the greenhouse gas emission reductions that the administration claims would result from implementing its "10-in-10" plan would require the fuels used to meet its proposed alternative fuels standard in 2017 to achieve an average 30% reduction in lifecycle greenhouse gas emissions compared to gasoline. Last week the president directed EPA to begin implementing this plan using its existing authority under the Clean Air Act. Congress should set its sights at least as high.

Given this context, NRDC opposes government price supports for coal-to-liquid projects with emissions just as bad as gasoline. Furthermore, we are concerned that the current draft might allow even worse performance. The bill allows for the sequestration or

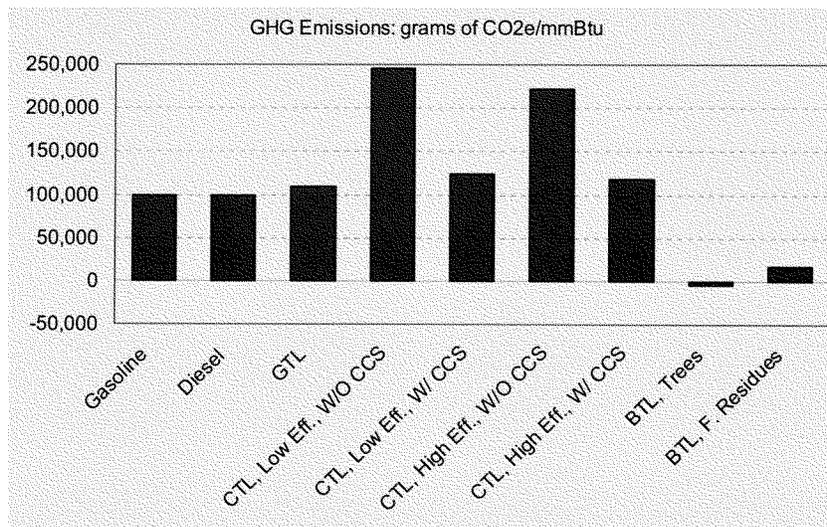
disposal or use of CO<sub>2</sub>, opening up a wide range of options that would not lead to real emission reductions. Using CO<sub>2</sub> in the food industry to carbonate beverages or freeze chickens, for example, in no way guarantees that it will not reach the atmosphere, where it contributes to global warming. While use of CO<sub>2</sub> from a coal-to-liquids might replace CO<sub>2</sub> from another source, that source would most likely simply vent all of its CO<sub>2</sub> directly into the atmosphere. We have no objection to putting CO<sub>2</sub> to use prior to disposal (in enhanced oil recovery, for example), but an emission reduction benefit should only be assigned if permanent geologic storage has been demonstrated through appropriate monitoring and verification.

We are also concerned that a coal-to-liquids facility would qualify for the program on the basis of a plan, to be certified by EPA. While a viable plan is certainly necessary, this is no guarantee that the emission control technologies would actually be deployed or that ongoing compliance would be monitored during the lifetime of the plant.

### **Conclusion**

Any proposal to promote coal-to-liquids or any other transportation fuel should be considered in light of the need for deep reductions in greenhouse gas emissions from the transportation sector to prevent dangerous global warming. As Chairman John Dingell told the Detroit Economic Club last week, our nation must find an “effective way to reduce both petroleum consumption and greenhouse gas emissions.” To accomplish this Congress should cap total greenhouse gas emissions from transportation fuels and require improvements in vehicle performance as well as progressive reductions in the average

greenhouse gas emissions per gallon of transportation fuels sold, as California is planning to do. Rather than promoting any particular feedstock or technology, Congress should focus on setting performance standards for reducing both oil dependence and global warming pollution.



**Figure 1.** Life-cycle greenhouse gas results of Fischer-Tropsch diesel produced from natural gas, coal and biomass (GTL=gas-to-liquids, CTL=coal-to-liquids, CCS=carbon capture and sequestration, BTL=biomass-to-liquids, F=forest; emissions include CO<sub>2</sub>, methane and N<sub>2</sub>O). Wang et al., 2007.

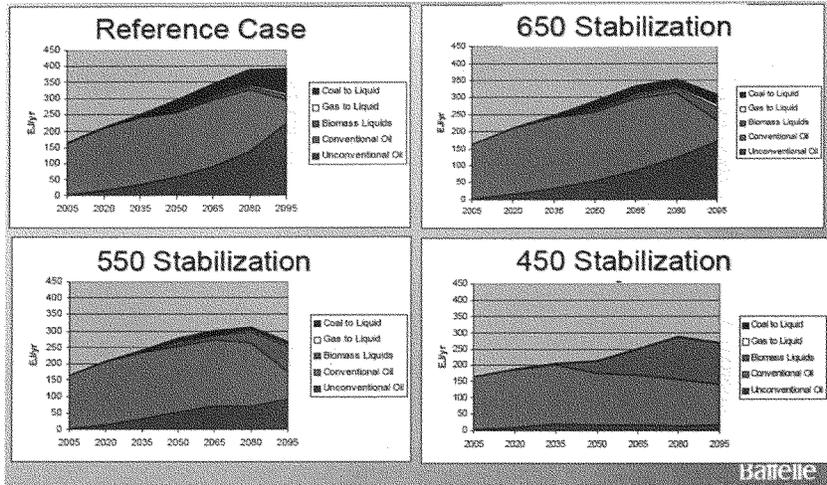


Figure 2. Conventional oil and alternative fuel supplies under four global warming emission limitation scenarios. Dooley et al., 2007.

Mr. BOUCHER. Thank you very much, Dr. Lashof, and thanks to each of our witnesses.

We have 7 minutes remaining to respond to the roll call votes on the floor, and there are four votes pending. Experience tells us that it will take approximately 45 minutes to complete these votes, and so I am going to declare a recess in these proceedings until we have finished. And we would appreciate your patience in remaining here until we can pronounce some questions to you.

So the subcommittee stands in recess for 45 minutes or until about 5 minutes after the last roll call vote is completed.

[Recess.]

Mr. BUTTERFIELD [presiding]. The committee will reconvene.

It is now time for each one of the committee members to ask questions of the witnesses. We are going to ask each of the Members to hold their questions and answers to no more than 5 minutes.

I was not here during the testimony, and I regret that I was not in place, but we were multi-tasking this morning, and I am sure all of you have an appreciation for that. We can solve a lot of problems on Capitol Hill, but one thing we cannot do is to be in two places at one time. So I apologize for my absence, but the staff has summarized your testimony, Mr. Maley, and I want to thank you very much for the preparation that you made, and thank you for coming forward today for this purpose.

Before I recognize Shimkus I want to simply ask two questions, and the first one will be to Mr. Maley. I believe in your testimony you mentioned price guarantees, and I guess my question to you is why would a price guarantee for coal-to-liquids be preferable to the traditional loan guarantees?

Mr. MALEY. What we like about this legislation is that we believe it puts the proper incentives on the owner and the investment community to make the project perform properly. A loan guarantee tied together with a tax incentive package for the equity investor to induce people to invest basically puts a project structure in place where the lender really has no risk whether or not the project ever works and even the equity investor really has no risks whether or not the project ever works because if it doesn't work, he has gotten his tax incentives and can recover his investment that way.

In this program with the cap and the ceiling, the ultimate performance of the plant, whether it actually generates the barrels that it is projected to produce and does it at a cost that works with the economics, really resides with the investor and the financial community. So we think it keeps the proper incentives and keeps the parties aligned to make the project a long-term success.

Mr. BUTTERFIELD. We have worked very hard on this legislation. Hopefully we are going to get it out in pretty short order, and if that happens will Leucadia be willing to build a coal-to-liquids facility if the bill passes?

Mr. MALEY. Yes, we will. We think this is the legislation that we would need. We have been actively developing a coal-to-liquids project in Illinois. It has been on a relatively low-scale effort at this point, but we are quite ready to accelerate that effort and commit very significant dollars to the development of one of these projects.

Mr. BUTTERFIELD. Thank you very much.

The Chair recognizes the gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. This is one of the charts that I brought out about 2 years ago when we first drew up the legislation, and I think it is important to just highlight the benefits based upon some of the debate.

You have U.S. coal underground, not in the Gulf Coast areas, which are highly at risk for hurricanes as we know. You build a plant hopefully somewhere in the Midwest, in the coal fields of the Midwest. You have a pipeline facility already established, centralized in the Midwest to be able to do a lot of things. To be able to fund our fighter planes in the military, to create cleaner fuel than currently is available for diesel engines today.

And I have, we had a chart in one of our hearings that talked about low diesel fuel, and everybody agrees that is a great advancement. When you compare to what this technology can do on SO<sub>x</sub>, NO<sub>x</sub>, particular matter with respect to low diesel fuel, it is incomprehensible why the environmental community will not work with us to try to make this happen. And we are going to keep fighting for these provisions for national security.

And I want to keep highlighting the aviation fuel aspect and the diesel fuel aspect because you are going to have folks talk about, as my friend talked about cellulosic debated ethanol and no one can out ethanol me I don't think on this committee, but that is gasoline. That is for automobiles, and we are talking about liquid fuel competition across the board. So I just wanted to highlight that.

The last is a thousand jobs, in fact, in the first hearing we had a lot of, I saw a lot of my friends from Morgan Heights. They were building trades, good building trade jobs to create these refineries, these pipelines, a lot of construction jobs, 15 million tons of coal per year and up to 500 coal mining jobs. That is why I am obviously very excited for all those reasons.

So my follow-up questions deal with this as I am sure no one would be surprised. First, Kathy, if you would talk about the recently released feasibility study that DOE just a couple days ago, and it talked about a barrel of oil, \$60, a 20 percent return on that investment. So essentially this study the plant is breaking even at \$48 per barrel, and really the question is does this include investment in CCS?

Ms. FREDRIKSEN. You are referring to the NETK study that we just released on May 21, and it looked at the feasibility of a commercial, 50,000 barrel per day coal-to-liquids facility in the Illinois coal basin. Based on its use of approximately 24,000 ton per day of coal we got an output of around 28,000 barrels per day of diesel fuel, 22,000 barrels per day of naphtha, and 124 megawatts of net electricity that could be returned to the grid after the production was used for the generation of the plant itself.

It did incorporate our recapture. It used carbon capture. It accounted for the carbon capture and then actual compression into a pipeline, so if you injected, there would be a little different configuration, but it did look at commercial reuse or sale of CO<sub>2</sub>. And that feasibility study, as you pointed out, showed a 20 percent return on investment, oil being at around \$60 a barrel, with a net present value of \$1.5 billion and a payback period of 5 years. That did not incorporate any loan guarantee from the Federal Government.

If you do put a Federal loan guarantee into the mix, you could raise your return to almost 30 percent, which is a pretty hefty return on investment for an investor.

Mr. SHIMKUS. And I think our proposal is obviously if they apply to this price provision, they are not going to be applicable for other loan guarantee provisions. But it is a good point well taken.

Now, we have Mr. Maley from Leucadia. I appreciate all the work you are doing. We have been following to date. I know your excitement in the process.

We know CCS, and we have talked about that, but can you talk to me about the use of biomass and how that can be involved in having refinery emissions that are in essence equal to or less than regular petroleum refinery locations today?

Mr. MALEY. I am not an engineer or an expert in that area, but just in discussions with some of the technology firms, there has been discussion about biomass either as an add on to a coal-to-liquids project or as a blend. Using biomass as part of that process helps achieve very significant reductions.

Mr. SHIMKUS. And Mr. Chairman, if I just may end on this line, equal-opportunity questioner here, for my friends at the NRDC, you came before the committee before when we were kind of talking about this proposal, and your testimony, I don't have it in front of me, but we were very optimistic or at least presently kind of excited about your support that if CCS was used, again, this is a statement that is in the record if I wanted to get the quote, but it made it a little bit more doable than if it wasn't. And it was qualified, I think. I think Chairman Boucher would agree, qualified at least, I can't say the word support, but you are less adamant in opposition if CCS were used. Is that still your position?

And then in the follow up because I am running over time would just be the whole issue of, and I asked this in the last time you all came before us, the ability to, do you believe that there is an ability to sequester now, and would you be involved in any litigation to deny the ability to a long-term geological store? Have you in the past and do you foresee the ability of your organization to take this issue to the Courts?

Mr. LASHOF. Thank you, Mr. Shimkus. Fewer emissions are better than more emissions, so to the extent that carbon is being captured and instead of going into the atmosphere, that is better. I think what I suggested in today's testimony and what I think some other members of the subcommittee suggested is we need to be looking at how this might or might not fit into a long-term reduction in global warming emissions.

And the conclusion I reach is that it doesn't fit into that strategy. If you compare it to some of the other alternatives, yes, ethanol is more applicable to a light-duty market but biodiesel obviously is applicable, and that part of the EPA's analysis produces about a 60 percent, 66 percent reduction in lifecycle greenhouse gas emissions compared with conventional diesel.

We believe that fundamentally, I would like to see the committee move away from focusing on any particular feedstock or technology and focus instead on our goals, which I think we share, which is reducing global warming emissions and reducing oil consumption.

I think if we can work in that way we may be able to cut through some of this controversy.

And to your last point just quickly, we are not as far as I know involved in any litigation related to carbon capture and storage. We actually are urging EPA to move quickly to set regulations so that everybody would have an understanding of what is required to license and operate a carbon capture project.

Mr. SHIMKUS. Thank you. Mr. Chairman, just, I know it will be just a short response.

Mr. BUTTERFIELD. Certainly.

Mr. SHIMKUS. I appreciate my friend's waiting.

Do you, back to Mr. Lashof, do you agree that at least the analysis of the technology on coal-to-liquids refineries has less emissions than a conventional petroleum refinery? Do you, if they are CCS? I mean, CCS is greenhouse gas. I am talking about the NOx and the SOx and the particular matter. Do you agree with those analysis?

Mr. LASHOF. Fisher Tropes fuel regardless of the feedstock at end use does provide some benefits in terms of NOx, SOx. Yes. I reviewed analysis, and I agree with that.

Mr. SHIMKUS. Thank you very much. Thank you, Mr. Chairman.

Mr. BUTTERFIELD. Thank you, Mr. Shimkus.

The gentleman from Utah. Looks like we are going to have a vote in about 10 minutes.

Mr. MATHESON. OK.

Mr. BUTTERFIELD. Yes.

Mr. MATHESON. Well, I don't think I will take 10 minutes.

I just want to, Mr. Shimkus mentioned hoping the plant would be built in the Midwest. I want to remind him there is some coal further out west, too.

Mr. SHIMKUS. Real coal?

Mr. MATHESON. Just a little bit. Yes.

Ms. Fredriksen, just to follow up, you mentioned that with the study that was just issued in the last couple of days and the 20 percent return and you said if you assume a loan guarantee that bumps up the return to 30 percent. Is that, I think this is straightforward, but is that based on the loan guarantee will provide cheaper financing costs through lower interest rates?

Ms. FREDRIKSEN. Yes, which is the goal of the Loan Guarantee Program as you—

Mr. MATHESON. I want to make sure people understood that. I think that in Mr. Maley's testimony I just think the committee ought to note that you went through a discussion of the strengths and weaknesses of loan guarantee and the price guarantee where you said it is a price band so the price moves inside or outside of a range. It affects it different ways. And also the strengths and weaknesses of just the production payment, if you will, a sense, pre-allen type payment, and I think that that reflected a good discussion how I think this legislation has thought that through a little more carefully than past Government programs on price support and loan guarantee. I just want to acknowledge that, because I think that was a helpful discussion in your testimony to go through that.

One question I, change the topic now for Ms. Fredriksen, I noted that DOE is supportive of the coal-to-liquid provisions included in the discussion draft. Does, has DOE looked at how comparable provisions might work relative to a different resource? In this case it would be the oil shell or tar sands would fit into this type of model. Do you know where the administration is on that?

Ms. FREDRIKSEN. We have looked at that, sir. We still believe that a title XVII program is going to help defray a lot of that new technology. I mean, that is what we are fundamentally getting to here is not off-the-shelf technology. It is very new, it is very unproven, and that is what the investors are a little afraid of. And so we are trying to help buy down that technology risk with a loan guarantee program. We did, however, look at other options and explored other options in an analysis of whether or not this collar approach would work. We have considered things such as a variable production tax credit that does float with a price index but is sort of term limited to a production capacity to get production where you need it to be, and then you can get out, the Government can get out of the way and let the market take over.

Mr. MATHESON. Right.

Ms. FREDRIKSEN. So there are a lot of options that we can consider, and I think they would be applicable to all technologies.

Mr. MATHESON. So other fuel stocks as well that I mentioned there?

Ms. FREDRIKSEN. Yes.

Mr. MATHESON. OK. That is all I got, Mr. Chairman. Thanks. I yield back.

Mr. BUTTERFIELD. Thank you very much.

All right. Do we need a second round? Do you have any other questions?

Mr. SHIMKUS. No, sir.

Mr. MATHESON. No, sir.

Mr. BUTTERFIELD. All right. Do you have any other questions? All right. Thank you once again for your testimony. I apologize for the disruption in our schedule, but I am certain all of you understand.

The hearing is concluded. Thank you.

[Whereupon, at 2:00 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]



June 1, 2007

The Honorable Rick Boucher  
Chairman  
Subcommittee on Energy and Air Quality  
Committee on Energy and Commerce  
2187 Rayburn House Office Building  
U.S. House of Representatives  
Washington, DC 20515

Dear Congressman Boucher:

On May 24, 2007, I testified on behalf of CURRENT Group, LLC ("CURRENT") at the Legislative Hearing on Discussion Drafts concerning Energy Efficiency, Smart Electricity Grid, Energy Policy Act of 2005 Title XVII Loan Guarantees, and Standby Loans for Coal-to-Liquids Projects.

I am writing to follow up on your request for suggestions of proposed State guidelines relating to the Smart Electricity Grid Discussion Draft. Attached please find CURRENT's proposed language to encourage the immediate deployment of the Smart Electric Grid around the nation. The proposed language builds on provisions in the Discussion Draft, but also includes language we respectfully propose that would go even further to provide robust incentives for Smart Grid deployment.

In addition to the proposed guidelines, we would also urge the inclusion of additional provisions to encourage the rapid deployment of Smart Grid in rural areas and those to which deployment may prove more difficult. I had the opportunity to discuss these briefly at the hearing and would look forward to the opportunity to discuss such provisions with you and other members of the Subcommittee.

Thank you again for the opportunity to testify and to provide these proposals.

Sincerely,

A handwritten signature in black ink, appearing to read "Jay Birnbaum".

Jay Birnbaum  
Senior Vice President & General Counsel  
CURRENT Group, LLC

Attachment

## SEC. 307. STATE IMPLEMENTATION OF INCENTIVES FOR SMART GRID.

Notwithstanding any State or local law or regulation to the contrary, each electric utility shall have the benefit of the following incentives:

(a) UTILITY INVESTMENT IN SMART GRID INVESTMENTS.—Each electric utility shall prior to undertaking investments in non-smart grid systems demonstrate that alternative investments in smart grid systems have been considered, including from a standpoint of improved reliability, security and system performance.

(b) DECOUPLING FROM UTILITY PROFITS.— A major portion of each utility's profit shall be based on criteria related to performance, achievement of designated goals, service reliability improvements, improvements in efficiency of electricity consumption, and shall not be based exclusively on the volume of electricity sales.

(c) UTILITY COST OF SMART GRID INVESTMENTS.— Each electric utility shall be permitted to—

(1) recover from ratepayers the capital and operating expenditures and other costs of the utility for a smart grid system, including a reasonable rate of return on the capital expenditures of the utility for a smart grid system and on 10 percent of its operations and maintenance costs for a smart grid system;

(2) recover in a timely manner the remaining book-value costs of equipment rendered obsolete by the deployment of a smart grid system, based on the remaining depreciable life of the obsolete equipment;

(3) retain no less than 50 percent of cost savings attributable to the use of a smart grid system; and

(4) earn an enhanced rate of return on its capital expenditures for a smart grid system, which enhanced return shall be equal to at least 130 percent of the maximum return a utility is permitted to earn on other investments and expenditures for its distribution network.

(d) NO STATE OR LOCAL BARRIER TO PROVISION OF SERVICE.—No State or instrumentality thereof shall enact or maintain any statute or regulation or other requirement that constitutes a barrier to an electric utility's deployment of a smart grid system on its distribution facilities or limitation on the services that may be provided using such system, provided that a State or instrumentality thereof may require that deployment of a smart grid system or the operation of such system be conducted by an utility affiliate or a third party designated by such utility.

SEC 3-- . SMART GRID SYSTEM.—The term "smart grid system" means a system capable of sensing, collecting and monitoring data of or from the substation, transformers, electric distribution lines, and enabled electric distribution devices along the power lines and of providing real-time communications to control the operation of such electric distribution devices; connected through a high speed and low latency, two-way communications system and a distributed computing system; and capable of real time analysis of and event prediction based upon collected data that can be used to improve electric distribution system reliability, quality and performance.