Mr. BARTON. Right.

Mr. GARMAN. You know, it varies widely. I can give you a very kind of gross median savings.

Mr. BARTON. Well, my understanding is the industry estimates that the cost of an air conditioner will increase by $407, 16.9 percent increase at 12 SEER, and $712 or a 29.5 percent increase at a 13 SEER. So the difference is nearly double between the 12 and 13, just in the cost of the air conditioner. Correct?

Mr. GARMAN. Yes, sir. The DOE numbers are actually lower than those numbers provided I think by the air conditioning manufacturers' trade. But they still are significant. It is--we estimate, particularly when you look at heat pumps, a SEER 13 heat pump is projected to cost $4,000 when these regulations take place.

Mr. BARTON. A SEER 13 would cost four thousand--.

Mr. GARMAN. $4,000. And that is lower DOE number estimate.

Mr. BARTON. And what would a SEER 12 cost?

Mr. GARMAN. The SEER 12--I don't have that number at my fingers. But you are leading me to a very important point, and it goes right the issue of energy efficiency. The choice that a consumer makes between air conditioners and heat pumps is a very important one.

Mr. BARTON. Why?

Mr. GARMAN. Because what can happen, as I said, the installed price of a 13 SEER heat pump is projected to be $4,000 compared to $2,571 for a split air conditioning system. Now, if we were to go to the 13 SEER, there would be an incentive for the consumer to team up the lower priced air conditioning system with a resistance heater furnace at a lower cost to get their heating and cooling. If only 4 percent of the consumers buying new equipment did this, they would erase the energy savings achieved by the 13 SEER standard.

Mr. BARTON. Can you say that again? Because I think that is a critical point in this debate if we are trying to get energy conservation.

Mr. GARMAN. If the price difference between a 13 SEER heat pump and a 13 SEER air conditioner, which is significant, drives only a fraction of consumers, 4 percent, to opt for the lower cost up front cost of teaming up an air conditioner with a resistance heating unit or resistance heating furnace--.

Mr. BARTON. Right.

Mr. GARMAN. --they will more than erase the nationwide savings that would be achieved.

Mr. BARTON. So if 96 percent of consumers go for the 14 SEER air conditioner, if that is the new requirement--.

Mr. GARMAN. Heat pump.

Mr. BARTON. Heat pump. I am sorry--then you would erase the savings achieved by the higher standards because you would drive people to go to the other.

Mr. GARMAN. That is right. I mean, that is the other thing.

Mr. BARTON. So in fact the regulations we put in place could actually have an inverse response by consum[illegible]d you could end up then consuming more energy.

Mr. GARMAN. That is right. 13 SEER could have the unintended effect of actually making us take a step backward in terms of energy conservation.

Mr. BARTON. All right. My time has expired. Thank you, Mr. Garman.

The Chair now yields 5 minutes to the gentleman from Michigan, Mr. Dingell.

Mr. DINGELL. Mr. Chairman, I thank you.

I would simply observe that the policies of this administration on these matters appear to be a triumph of conservative ideology of over technology and good sense, and I yield to my good friend from Massachusetts.

Mr. MARKEY. I thank the gentleman very much.

Let me move back in, Mr. Garman, about the administration's concern for poor people. And, by the way, congratulations. Because the New York Times poll yesterday, poling all voters in the United States, when asked the

question of which Americans the Bush administration favors most, an astounding 57 percent of all Americans--Bush policies generally favor the rich--57 percent of Americans say the rich, 8 percent say middle class, and 2 percent of all voters say that the Bush administration favor poor people. So congratulations. You seem to have found the one issue where the Bush administration is favoring poor people.

Now let's explore that concern as the driving force for rolling back this air conditioning standard.

So there are about 15 million people, Mr. Garman, who live at or below the poverty line in the United States. Now, 3.7 million of those households use central air conditioning, 60 percent of those rent. So we are talking maybe 2.2 million households now. Now, understanding the way the population of the United States works for central air conditioning, most of those homes would be in Texas and Florida and California. They would be in the warmer States, obviously. Almost by definition, those are the people who would need it most, and that is where they would be centralized.

Now, central air conditioners last about 18 years and cost between $2,000 and $5,000. According to DOE's high-cost estimates, a 30 percent improved standard will cost about $340 more than current basic models. If a landlord chose to attempt to recoup this increment by raising rent over an

18-year product life, the rent increase would be less than $2 per month.

Now the 40 percent of the 3.7 million low-income households with central air conditioning who own their homes at some point would face the cost of replacing a central air conditioning system, and there--I think you would agree that for most of these households the monthly utility bill savings from the strongest standard over the life of the home will outweigh the incremental cost of financing a more inefficient air conditioner. So, again, could you go back through this analysis and tell me why the low-income renter or owner is worse off having a national SEER 13 standard 5 years from now than having a 12 standard over the lives of their families?

Mr. GARMAN. I will again reiterate as best I can the consumer impact comparison between 12 and 13 SEER for split air conditioners and heat pumps. The median payback period for an average consumer and the 12 SEER standard is 10 years, according to DOE analysis, notwithstanding the fact that the law tells us to use as a general guidepost a rebuttable presumption of a 3-year payback. But, nevertheless, the administration placed the emphasis and the importance of energy efficiency as saying that we are going to promulgate a minimum national standard that the average consumer could not recoup until 10 years. The low-income consumer would take 12 years to recoup it. In the case of the 13 SEER standard,

those numbers become 11 years to 14 years.

Mr. MARKEY. What is the electricity price that you assume in that?

Mr. GARMAN. These are minimum payback periods.

Mr. MARKEY. No. What is the minimum?

Mr. GARMAN. It depends, because electricity prices vary with region.

Mr. MARKEY. How long would it take the electricity rates that have been in California for the last year and that the Bush administration refuses to interject themselves to use cost of service rate, how long would it take to get a recovery for California low-income users?

Mr. GARMAN. For, of course, a much shorter time in any area of the country--.

Mr. MARKEY. Thank you.

Mr. GARMAN. --where rates are higher or when temperatures are higher and air conditioners are used more often.

Mr. MARKEY. How about in Texas? How long would it take to get a return?

Mr. GARMAN. It should not--it should take a matter of several years to get a return in Texas.

Mr. MARKEY. What do you mean, "several years"?

Mr. GARMAN. Well, again, it depends on a number of factors.

Mr. MARKEY. So you would get the return after maybe 3 or

5 years in Texas or California, and then for every other year after that there would be savings which the consumer or the landlord would be enjoying.

Mr. GARMAN. Correct. Remember, sir, we are promulgating a minimum national standard. Consumers in Texas or Louisiana are free to buy Energy Star devices today in the marketplace.

Mr. MARKEY. But you understand that the landlord has no incentive.

Mr. BARTON. The gentleman's time has now expired.

Mr. MARKEY. If I may just finish my thought. The landlord has no incentive to buy an efficient central air conditioning system since they can pass the cost on to the tenant, to the poor tenant; and so it is not the poor person who makes that decision. The poor person is subjected--.

Mr. BARTON. The gentleman's time is expired.

We want to thank the panelists for their presentations today. If members have further questions, they are welcome to submit them in writing.

We have a number of panelists who are here today to testify in our next panel, so we would welcome them up to the committee table at this time.

We want to welcome our panelists this morning. Each of you will have 7 minutes to make your presentations. We have your written testimony which has been entered into the official record of the committee. Feel free to work off of

Department of Energy
Washington, DC 20585

September 25, 2001

The Honorable Joe Barton
Chairman
Subcommittee on Energy and Air Quality
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

On July 26, 2001, we sent you the edited transcript of the June 22, 2001, testimony given by David K. Garman, Assistant Secretary for Energy Efficiency and Renewable Energy, regarding National Energy Policy: Conservation and Energy Efficiency.

Enclosed are two inserts requested by Representatives Boucher and Tauzin to complete the hearing record. It has been determined that no action is required for the insert requested by Representative Burr.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Lillian Owen, at (202) 586-2031.

Sincerely,

Dan Brouillette
Assistant Secretary
Congressional and Intergovernmental Affairs

Enclosures

their assumption is that as the price of oil escalates, fuel cells become more competitive because they can bring the fuel cell cost down and the oil cost is going to go up.

I may have misinterpreted his reaction, but my interpretation of his reaction was, they haven't given any thought to what happens when OPEC says, oh, fuel cells are becoming pretty efficient. We had better lower the price of oil so that internal combustion engines are still competitive. We better pump more.

If your only asset is hundreds of billions of barrels of oil reserves, and the Western economy moves to fuel cells and says, the heck with the internal combustion engine, then you don't have an asset. So all these projections that oil prices are going to $50, $60, $70, $80 a barrel, that is only if we don't develop an alternative.

If we really develop an alternative, those prices are going to go down to stay competitive. I don't think that at least the GM people had thought about that. We need to think about that if we are going to put all of our eggs into fuel cell technology, because the people that are providing the oil are not crazy people. They are going to eventually say, we have got to lower our price to stay competitive.

The gentleman from Virginia is recognized for 5 minutes for questions.

Mr. BOUCHER. Well, thank you very much, Mr. Chairman.

And, Mr. Garman, I also want to congratulate you on your appointment and thank you very much for being here today and say that we look forward to working with you as we develop the energy conservation and efficiency portions of our national energy strategy legislation.

Let me direct your attention to a provision in the report of the administration's Energy Task Force, recently released, which recommends--and I will simply quote this; that will save you actually having to open it up. You are probably familiar with this direction, in any event. The recommendation is that "the President direct the Secretary of Energy to establish a national priority for improving energy efficiency.".

I would like for you, if you would this morning, to give us a sense of how that direction is going to be translated into concrete recommendations. Give us a status report, if you would, on your work in developing the recommendations stemming from that direction.

Here is where you may want to take a note or two. In particular, I would appreciate your indicating how the Department of Energy would propose to have energy efficiency improvements in the following areas. And I will be very precise about the areas that I would like for you to address.

First of all, how soon do you intend to update the existing standards for a residential dishwasher and for

refrigerators, residential dishwashers and refrigerators?

Secondly, how soon do you expect to complete the ongoing proceedings, which I think have been under way for a matter of years, extending well back into the last administration, relating to electricity distribution transformer efficiency?

Then, third, will the administration support new efficiency standards for the following: commercial refrigerators, exit signs, traffic lights, icemakers, and commercial unit heaters?

The reason I have selected these precise latter topics is because we are getting recommendations from other witnesses who will appear this morning that in our legislation we include these precise items with directions that energy efficiency improvement standards be established. So anticipating those recommendations, I would like to get your view on those subjects.

I will yield the balance of my time to you for that.

Mr. GARMAN. One of the things that we are working to do--and I will be candid with you, looking at that particular recommendation that you cited, making energy efficiency a national priority, gives us something of an open field.

What the Secretary has directed, the Deputy Secretary, the number two official in the Department, us to do is to take this document and to translate it into implementation actions. We were in a meeting yesterday in his office going

over some of these very points.

It is going to require in most cases a collaboration between the other agencies--the Department of Transportation, the Environmental Protection Agency--frankly, a level of collaboration we haven't always seen in the past. So in addition to the fundamental issue of translating this, we are going to have to refashion the dialogue and improve the dialogue between the disparate Federal agencies to begin to put some meat on the bones of these recommendations.

Now, that process is under way, and on a weekly basis, we have updated matrixes to try to implement the policy and really put a fine point on it.

With respect to the specific standards, we are well along the way on distribution transformers, and I can't give you an exact time frame because, of course, it is a regulatory process and there are opportunities for some of the stakeholders in the process to lengthen or expedite depending on--but let me--.

Mr. BOUCHER. Can you just give us a general sense?

Mr. GARMAN. Sure. I think we can--I think that distribution transformers are an opportunity for a reasonably expeditious win. I think that--and part of this, because one of the programs that we are actually going to review in the context of this strategic review are our rulemaking processes on setting new standards for these various items.

I can tell you that some that you have mentioned, refrigeration, commercial, are on our higher priority list. And I would beg the indulgence of the committee--and perhaps this is something I can provide you for the record--something of a matrix of our current thinking on the prioritization of these various appliances and the general time frames in which we think we will be turning to them.

Mr. BOUCHER. Mr. Chairman, thank you. My time has expired. Let me simply conclude by thanking Secretary Garman for his attendance here and his answer to this question.

And, Mr. Secretary, I would very much welcome at the earliest time that you could provide it that written response to this question that establishes these priorities and some suggested time frames for completing these various rulemakings. And to the extent that you can talk about your level of support for the specific items that I indicated in the last part of the question for refrigerators and the other items, that would be welcome, too.

Now, we are proceeding on a fairly rapid schedule here to adopt legislation on this set of issues, and so if you could provide an answer perhaps by next week, that would be timely and helpful to us. And I thank you and thank you, Mr. Chairman.

[The information follows:]

COMMITTEE: HOUSE ENERGY AND COMMERCE
SUBCOMMITTEE: ENERGY AND AIR QUALITY
DATE: June 22, 2001
WITNESS: David Garman
PAGES: 37-41 Lines 844-977

Summary of Priorities

Standards and Determinations (D)

High Priority Products		Low Priority Products
Residential Central AC/HP*		Clothes Dryers
Distribution Transformers		Clothes Washers*
Residential Furnaces and Boilers		Cooking Products – Electric*
Air-Cooled Central Air Conditioners and Air-Source Heat Pumps, 65-240 kBtu/h		Direct Heating Equipment, Gas
Packaged Terminal Air Conditioners and Heat Pumps		Dishwashers
Small Electric Motors (D)		Electric Motors, 1-200 HP
Niche Products-Residential A/C		Fluorescent Lamp Ballasts*
Cooking Products - Gas*		High Intensity Discharge Lamps (D)
		Lamps
		Mobile Home Furnaces
		Plumbing Fixtures/Fittings
Medium Priority Products		Pool Heaters, Gas
Central Air Conditioners and Heat Pumps, 3 phase, <65 kBtu		Refrigerators*
Oil- and Gas-Fired Commercial Packaged Boilers		Residential Water Heaters*
Tankless Gas-Fired Instantaneous Water Heaters		Room Air Conditioners *

Drops to Low Priority upon Completion.

* Final Rules for these products have been recently published

Mr. GARMAN. But, as you pointed out, there are new modifications and possibilities that it affords. I think in--particularly in some of, you know, energy renewable where an external heat source can be applied.

Mr. TAUZIN. We are also told that in distributive energy systems Sterling engines can be extraordinarily useful, particularly new designs. I would love to have something from you to complement what Charlie Bass has brought on our committee, if you can to give us your latest of its potential as part of a conservation and distributive energy initiative.

Finally, I just wanted a comment from both of you on one of the most important elements of conservation. In California, when California had price caps on the retail market on its electricity, we discovered in our surveys in California a drop in conservation of 8 percent. It shouldn't have surprised us. Price controls tend to encourage demand and weaken conservation efforts. Price increases have the opposite results always. We saw a 13 percent increase in conservation in California the moment it was announced that those price controls would be lifted on the retail market.

Is the price of gasoline going up, shortage of natural gas, prices of natural gas going up? How much do prices and increases in prices under your analysis create conservation incentives? What is the relationship in that? Is it a one-to-one relationship? Is it a one-to-two?

COMMITTEE: HOUSE ENERGY AND COMMERCE
SUBCOMMITTEE: ENERGY AND AIR QUALITY
DATE: June 22, 2001
WITNESS: David Garman
PAGE: 48 Lines 1088-93

INSERT FOR THE RECORD

Stirling engines have several attributes that make them attractive for distributed energy applications as well as renewable energy applications:

(1) **Flexible.** Stirling engines are external combustion engines and can accept heat input from a variety of sources, including solar energy. Stirling engines can be designed to burn more than one fuel and operate in a "Hybrid" mode. DOE has worked with several engine manufacturers (such as STM Corporation) to develop an engine that is capable of using solar energy and/or biogas in combination with natural gas, landfill gas, and hydrogen. This would provide a potentially dispatchable power supply for grid-connected utility as well as off-grid remote applications.

(2) **Efficient.** The efficiency of the Stirling engine is approximately 40 percent as compared to 30 percent for microturbine technologies. This is the reason why the Stirling technology is currently the engine of choice for solar dish systems. Solar dish systems, with a Stirling engine at the focal point, have an overall system solar-to-AC power efficiency of nearly 30 percent.

(3) **Modular.** Current Stirling engines range in size from several hundred watts to 25 kilowatts, with applications including refrigeration, cryogenics, cogeneration, and power generation. This makes them ideal for on-site power applications.

Department of Energy
Washington, DC 20585

2001-800100

September 18, 2001

The Honorable Roscoe G. Bartlett
Chairman
Subcommittee on Energy
Committee on Science
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Enclosed is the edited transcript of the June 12, 2001, testimony given by Robert S. Kripowicz, Acting Assistant Secretary for Fossil Energy, regarding the "Fossil Energy Research and Development and Clean Coal Technology."

Enclosed also is an insert that you requested for the hearing record.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Lillian Owen, at (202) 586-2031.

Sincerely,

Dan R. Brouillette
Assistant Secretary
Congressional and Intergovernmental Affairs

Enclosure

YORK STENOGRAPHIC SERVICES, INC.

HEARING ON THE PRESIDENT'S NATIONAL ENERGY POLICY:

CLEAN COAL TECHNOLOGY AND OIL AND GAS R&D

Tuesday, June 12, 2001

House of Representatives,

Subcommittee on Energy

Committee on Science

Washington, D.C.

The Subcommittee met, pursuant to call, at 10:05 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Roscoe G. Bartlett [Chairman of the Subcommittee] presiding.

from R&D efforts in the government, private sector, and in our universities assist us in producing more energy more efficiently and in a way that comports with the needs of public and worker health and safety and the health of our environment?

Our first Panel will consider all aspects of clean coal power technology, including how the President's proposed 2 billion in spending on clean coal technologies may both increase efficiency and reduce emissions from utilities and find innovative new uses for coal and coal bed methane.

Our witnesses will be Robert S. Kripowicz, Acting Assistant Secretary for Fossil Energy at the U.S. Department of Energy. Mr. Kripowicz will also appear on Panel II. Bob Yamagata, Executive Director of the Coal Utilization Research Council; James E. Wells, Director of Natural Resources and Environment at the U.S. General Accounting Office; Katherine Abend, hopefully, Global Warming Associate at the U.S. Public Interest Research Group, U.S. PIRG; and John S. Mead, Director of the Coal Research Center at Southern Illinois University, Carbondale. I understand that my colleague, Mr. Costello, will be introducing his constituent, Mr. Mead, formally at the conclusion of my remarks.

The second Panel will consider how technologies derived from petroleum and gas R&D can be employed to improve exploration, extraction, refining, and processing, and

transportation of these fossil fuels. Our witnesses will include Virginia Lazenby, Chairman and CEO of Bretagne, GP, Nashville, Tennessee, on behalf of the Independent Petroleum Association of America; Paul Cuneo, Vice President and Chief Information Officer of Equiva Services, LLC, Houston, Texas, on behalf of the American Petroleum Institute; Dr. Craig W. Van Kirk, Professor of Petroleum Engineering and Head of the Department of Petroleum Engineering at the Colorado School of Mines, Golden, Colorado; and Dr. Alan Huffman, Manager of Conoco's Seismic Imaging Technology Center, Houston, Texas.

I look forward to hearing today's testimony and pursuing these subjects in greater detail. Before we get started, however, I would like to remind the members of the Subcommittee and our witnesses that this hearing is being broadcast live on the Internet, so please keep that in mind during today's proceedings. I would also like to ask for unanimous consent that all members who wish may have their opening statements entered into the record. Without objection, so ordered. I now turn to my distinguished colleague, Mr. Costello, for an introduction and his opening remarks.

[Statement of Mr. Bartlett follows:]

********** INSERT 1 **********

Mr. COSTELLO. Well, Mr. Chairman, thank you very much, and I thank you for calling this hearing today. I will submit my statement, my formal statement, for the record. I welcome all of our witnesses here today and I look forward to hearing their testimony.

In particular, I welcome a constituent and friend, John Mead, who is a part of the first Panel. Mr. Mead is the Director of the Coal Research Center at Southern Illinois University in Carbondale. In fact, I recently attended just a few weeks ago a forum on clean coal technology and the future of coal at Southern Illinois University in my Congressional district. Mr. Mead was the moderator. It was a forum called by the Governor of Illinois and Senator Dick Durbin, as well as members of the Congressional delegation, my colleagues, David Phelps and John Shimkus, also attended. John is very familiar with coal issues. He has been at the research center at Southern Illinois University for many years and is very familiar with clean coal technology.

Mr. Chairman, there is no question that clean coal technology exists today that, in fact, significantly reduces emissions of air pollutants. And there is new technology that I believe will reduce emissions to a greater extent than we ever imagined or anticipated. Over 50 percent of all electricity generation comes from coal-powered plants in the United States today. We have an abundance of coal in

southwestern Illinois and other parts of this country and I believe that we, in fact--any policy--energy policy coming out of the White House or the Congress should, in fact, include, to a large part, coal.

I applaud the Administration and Vice President Cheney, as well as President Bush, for asking the Congress to put additional money in fossil fuel research and development and in clean coal technology. We, in fact, need to continue to do research and development so that we can burn coal in the most efficient and environmentally friendly manner. And with that, Mr. Chairman, I will insert my statement in the record and look forward to hearing from our witnesses. Thank you.

[The statement follows:]

********** COMMITTEE INSERT **********

Chairman BARTLETT. Thank you very much. I note that we have been joined by two additional members of our Panel, Mr. Smith and Ms. Biggert. You may make an opening statement if you wish. Any formal statement will be included in the record. Do you have comments before we welcome our witnesses? Mr. Smith.

Mr. SMITH. Mr. Chairman, if I may, I was on the Presidential Oil Policy Committee during the Arab Oil Embargo back in the early '70s and it seems like again a revisiting of some of the concerns of our increased dependency on especially imported petroleum products. At that time, we were importing about 35 percent of our petroleum energy needs. Now, it is approaching 58 percent, I believe. And so, again, it should be a heads up and a reminder that that kind of dependency makes us more vulnerable and has a tremendous impact on both the economy and the environment. So thank you and the Ranking Member for holding this hearing. Thank you.

Chairman BARTLETT. Well, thank you very much. And I might add that there is a national security implication too and we are getting nearly 60 percent of oil from overseas. That is too little recognized, I think. Without objection, the full written testimony of all the witnesses will be entered into the record. I would ask that you summarize your testimony in 5 minutes so we will have plenty of time for questions. And let me assure you that any detail that you wish to expand on,

you will have ample opportunity to do that during the question and answer period. So without any further delay, Mr. Kripowicz, you may begin.

STATEMENT OF ROBERT S. KRIPOWICZ, ACTING ASSISTANT SECRETARY FOR FOSSIL ENERGY, U.S. DEPARTMENT OF ENERGY

Mr. KRIPOWICZ. Thank you, Mr. Chairman. Mr. Chairman, and members of the Subcommittee, I appreciate the opportunity to appear today with both panels and I want to commend the Subcommittee for holding this hearing. I believe it is important that periodically we step back from the day-to-day conduct of our programs and ask the questions, are we making progress, is that progress benefiting the American people, and are we moving in the right direction?

I believe that for the Federal Fossil Energy Program, the answer to each of those questions is an unequivocal yes. And I appreciate the initiative, Mr. Chairman, you have taken in holding this hearing to review the progress and benefits to date and to discuss the course we should be setting for the future.

In my formal statement I have used specific examples to illustrate some of the technology advances that have resulted from our partnerships with industry and academia. For each items I have cited, there are many more that could be referenced. In the interest of time, however, and to provide adequate opportunity for my fellow panelists, I will highlight only a few examples.

Let me begin with the Clean Coal Program. As you are aware, the President has made clean coal technology one of

the core elements of his National Energy Policy. Why clean coal?

As the chart on page 2 of my statement illustrates, coal supplies more than half the electricity consumed in this country and America has more than two-and-a-half centuries of recoverable coal. So at a time when a major issue confronting this Nation is the future reliability of electricity, it makes little sense to turn our back on this abundant resource, especially if we can develop technology that reduces, or perhaps one day soon eliminates, environmental concerns over its use.

The Clean Coal Technology Program that began in the mid-1980s and extended through five rounds of industry competition laid the groundwork for such technology. Thirty-eight projects ultimately were part of this program. Several are still underway. Of the 30 or so that have been completed, 22 have achieved some form of commercial success.

But more importantly, the Nation has benefited. When the Clean Coal Program began, power generations had only a limited number of choices for reducing most types of air emissions, and what was available was generally expensive and, in some cases, unreliable.

Today, largely because of the Clean Coal program and related R&D, the menu of options has been greatly expanded. Low-NOx burners, for example, were unproven when the Clean

Coal Program began. Now, because of the experience gained in several Clean Coal projects, three out of every four coal-fired power plants in the U.S. are, or will soon be, equipped with low-NOx burners.

Within the next 2 years, 30 percent will be outfitted with selective catalytic reduction for even greater NOx control. Again, the Clean Coal Technology Program helped demonstrate the technology and lower costs.

In fact, before the Clean Coal Program, options for controlling nitrogen oxides could cost as much as $3,000 per ton of NOx removed. Today, these costs have been cut in half for selective catalytic reduction. And low-NOx burners can reduce nitrogen oxide pollutants at costs of less than $200 per ton.

Flue-gas scrubbers for sulfur dioxide, once expensive and unreliable, now cost 1/3 of their 1970's costs. Not only are they reliable, but the technology is now available to convert the sulfur they take out as a pollutant into a product that can be used to make wallboard, for example.

Again, Mr. Chairman, for a country that is increasingly concerned about the costs of electricity, having technology available that can reduce environmental compliance costs from what is already our lowest cost fuel for power generation, creates an enormous economic benefit.

Perhaps, equally important, the Clean Coal Program has

provided the basis for future benefits, benefits that the President's new clean coal initiative is intended to achieve. Coal gasification-based power generation is one of those new technologies. Because of the Clean Coal Program, we now have the first pioneering gasification combined cycle power plants operating commercially in the U.S. Their environmental performance approaches that of natural gas.

Moreover, further improvements lie in the future. The use of fuel cells and advanced turbines, in combination with a coal gasifier, the ability to convert a portion of the coal gas into premium liquid fuels and chemicals, the potential to develop a coal-based energy system that lends itself to the future capture and sequestration of carbon dioxide--all of these are future pathways opened up by the clean coal gasification projects underway at Tampa, Florida and West Terre Haute, Indiana.

In fact, Mr. Chairman, as I mention briefly in my prepared statement, we see the very real possibility of future coal-fired plants that are virtually pollution-free. That for all intents and purposes, remove environmental objections from the use of our most abundant fossil energy resource.

Now, let me turn briefly to the subject of your second panel, which is petroleum and natural gas technology. Again, the long-term ability of our energy industry to find and

produce the liquid and gaseous fuels on which our economy depends, will largely be dictated by continuing advancements in technology.

The Vice President's National Energy Policy Development Group recognized this and recommended efforts to continue fostering improvements in oil and gas technology. Again, in this area, I believe our track record is good.

One of the major advancements in oil and gas technology in the last 20 years has been the polycrystalline diamond drill bit, and we are proud of the fact that one of our national labs solved the bonding problem that made such bits possible. Today, we are working with national laboratories, universities, and the industry to make the next leap forward in drill bit technology. For example, using special microwave techniques to develop a bit that will last longer and drill deeper and faster.

I have described new seismic technologies that were supported in our program, like four-dimensional seismic technology that adds time to the imaging equation, and new imaging systems that work at the bottom of an oil or gas well and whose resolution is ten times more precise than other technology.

These are technologies that offer benefits across the board for all types of companies drilling in more complex environments. But in recent years, the nature of our domestic

oil industry has changed and so has the focus of much of our research.

Today, smaller independent companies are rapidly becoming the dominant oil and gas producers in the United States. Independent producers account for 40 percent of the crude oil produced in the United States and 50 percent of the oil produced in the lower 48. They produce 2/3 of our Nation's natural gas and they account for 85 percent of all the new wells drilled in the United States.

Now, very few of these companies conduct significant research by themselves. Traditionally, most have relied on technology to trickle down from the majors, but with more and more of the larger companies moving to more lucrative prospects overseas, the flow of new technology has slowed.

Our program attempts to fill the gap, working with independent producers to determine whether promising, but high-risk approaches work, and, if they do, requiring the producer and others in the industry to undertake an aggressive technology transfer effort.

I have cited two examples in my testimony of partnership projects that have worked. One of the projects involved a complete oil field workover using new technology to locate and produce oil that had been previously abandoned. In the last 5 years, that project, near Bakersfield, California, has produced more than 1 million barrels of oil that, otherwise,

would have remained in the ground. More importantly, it stimulated 100 new privately funded wells in the surrounding area.

That was a full cost-shared field test. Often, however, we find that small grants, targeted at very specific production problems, can return major benefits. A small producer working in a field in Los Angeles wanted to try a new type of acid treatment to remove downhole deposits that were on the verge of putting many of his wells out of operation. He applied for a DOE grant to help cover the risks of this unproven technique and was selected for a cost-sharing project in a DOE competition. The treatment has exceeded expectations. Oil flow not only has been restored, but is now four times the previous rate. And the producer is now holding workshops and technical meetings to describe the new acid treatment process to other producers.

These, I believe, Mr. Chairman, are the keys to successful federal research programs. First, partner with industry to support the new ideas that otherwise would be too risky to pursue. Secondly, wherever possible, support new ideas through cost-sharing and where industry must compete with their peers for federal support. And third, ensure that there is a built-in technology transfer, where the involvement of industry and the financial commitment that industry makes provide natural conduits for successful

technologies to be used commercially once the federal project is over.

Our goal is to foster this type of research program in the Fossil Energy Program at the Energy Department. With fossil fuels supplying 85 percent of the Nation's energy, we believe that such a program is a necessary component of a more energy secure, economically strong, and environmentally healthy future. Thank you for the opportunity to testify.

[Statement of Mr. Kripowicz follows:]

********** INSERT 2A **********

362 [The information follows:]

363 ********** INSERT 2 **********

364 Chairman BARTLETT. Thank you very much. Mr. Yamagata.

STATEMENT OF BEN YAMAGATA, EXECUTIVE DIRECTOR, COAL UTILIZATION RESEARCH COUNCIL (CURC), WASHINGTON, D.C.

Mr. YAMAGATA. --public and private partnerships. I pretend to be a technologist, but that is clear evidence that that is not the case. In any case, we have submitted a written statement. In that written submittal, may I commend to you, Mr. Chairman, and to members of the Subcommittee, for your review, there is a detailed description and discussion of our organization's coal technology road map which has been an attempt by our membership to outline the technology needs for coal that at least we believe will best ensure the long-term economic and environmentally acceptable use of this very plentiful domestic and secure energy resource.

May I also commend to your viewing an electronic version of a document prepared by the National Mining Association that describes the overall benefits of coal and the value of the government and industry's Clean Coal Technology Program. Within the time allotted to me, Mr. Chairman, I would like to use this handout that I have prepared for the Committee's perusal, and to discuss with you very generally the elements of the CURC technology road map and then to suggest to you that successful pursuit of this road map or any other like technology road map will require a commitment, a commitment on the part of industry and government, a commitment that must form--be formed by adequate amounts of time and adequate

amounts of cost-shared funding.

Over the course of the last couple of years, the membership of CURC has drafted and agreed upon the key elements of a coal technology road map. This is not unlike the road maps that have been produced by the Department of Energy in their Vision 21 program.

May I turn your attention to page 3 of this handout? That page is entitled, ''Performance Targets for Coal Generation.'' Herein lies the essence of our coal technology road map that sets forth the goals and the timetables for technologies to ensure the continued long-term use of coal.

Very, very briefly, this is a chart that attempts to explain the time frames for technology development. That is, the technologies that we have today, both their costs and their performance criteria, along with the technologies in the 2010 and the 2020 time frame, which we believe industry and government are capable of achieving.

Let me just point out that one of the metrics in the 2020 time frame is that we try to, and we believe we can, develop technologies that are twice as efficient as the type of power plants we see today. Technologies that will be cost effective and embedded in the technologies themselves are the ability to sequester CO2 to the extent that that is necessary.

May I turn your attention to page 4 of the handout entitled, ''CURC Highest Priority, Coal-Fired Generation

Technology Development?'' Here we have attempted to identify the critical technology needs for coal by describing a set of five technology platforms. That is along the left-hand hash marks of the chart. These technology platforms focus upon coal technology needs that are required in the near term to address existing power plant emission regulations. In the mid term, that is to 2010. For--so that we can contemplate the expanded use of what we know we have today--that is, pulverized coal units in the form of supercritical and ultra-supercritical coal units. And in the farther out period, that is the 2020 time period, primarily to use gasification or combustion gasification systems to achieve very high, cost-effective high efficiency and high emission control technologies.

I would hasten to add that gasification currently exists with Texaco and others, as it is now applied commercially around the world. It is, however, also the building block upon which future technology ought to be developed. Importantly--importantly, we have also estimated the total funding requirements that these technology platforms will be acquired. That is, to meet the goals and the time tables laid out in the chart on page 3.

In our view, an investment of at least $10 billion will be required over the next 20 years, up to 1/2 from the private sector and the remaining from the public sector, over

the next 20 years. This public/private commitment includes time and funding for research and development and also for demonstration and deployment of new first-of-a-kind systems.

Two quick points, Mr. Chairman, if I may. First, the existing Clean Coal Program has been a great success. As Assistant Secretary Kripowicz has pointed out, 38 projects undertaken, a total of more than 5 billion committed and spent. I commend to you an attachment in my written testimony, drafted by the Southern Company, that seeks to identify the benefits of joint industry government clean coal efforts, for those so critical of past clean coal efforts, please look at the facts.

Second, and most importantly, we are delighted with President Bush's commitment to a multi-year clean coal development program. He has sought to initiate that commitment with $150 million request this year, to begin a long-term demonstration program. I would point out, however, that you cannot take funds away from the basic coal R&D program to cover the costs of the demonstration program. We need both of them. We need R&D, particularly, because it is the seed corn that will grow improvements later on.

In this same vein, the Vision 21 program, which, frankly, is more aggressive in its technology goals and even the CURC road map, needs to contemplate demonstration programs on a scale that will provide industry with confidence that the

technology actually works.

In conclusion, there are plenty of technology road maps. We have one of them. We know what needs to be done, Mr. Chairman, and, members of the Subcommittee. It is time and money that must be committed by both the private sector and the public sector. We need to set a course for coal-based R&D and then we need to stick to it. Thank you.

[Statement of Mr. Yamagata follows:]

********** INSERT 3 **********

474 Chairman BARTLETT. Thank you very much. Mr. Wells.

STATEMENT OF JAMES E. WELLS, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, U.S. GENERAL ACCOUNTING OFFICE

Mr. WELLS. Thank you, Mr. Chairman, and, members of the Subcommittee. We, too, are pleased to be here today to discuss our past work on the Clean Coal Technology Program. In almost 20 years since it started, a lot has been said, both for and against this program. Our report last year that looked at the status of the program at the end of 1999, talked to 60-some projects that had been awarded and funded out of roughly 210 proposals that had been submitted.

In reporting on the status of the program, we noted that 24 projects had been completed at that time, 16 were currently active, and 10 had been terminated or withdrawn, along with another 10 or so that had fallen out earlier in the program. No new projects have been started in the last 5 or 6 years. About $800 million of the 1.8 billion federal funds, of the share, had not been spent at that time.

The just-completed White House National Energy Policy Group is recommending that the Administration invest $2 billion in a new restructured Clean Coal Program over the next 10 years. In this context, my testimony today will focus on the findings of our last decades of audits of the Clean Coal Program and the lessons that may have been learned from those past efforts. My full statement was prepared and talks to the successes and the weaknesses that we saw in the

program.

This morning, I will let the other distinguished Panel members here speak to the successes of the program and I will highlight some of the problems that we observed over the last decade. As you know, as auditors, we are best at identifying problems.

1989--as the first awards were made, there were many company financial problems and delays in getting the business arrangements made. The awardees raised issues to DOE relating to their reluctance to repay the federal cost share. Again, concerns over viability in a competitive marketplace.

Proprietary data issues arose over the possible public release of competitive information that may have disadvantaged companies. Again, frustrating delays in achieving and obtaining various permits, either at the national or state or local levels, and not surprisingly, with any new federal program, there were cumbersome headquarters review and approval processes.

1990--as we looked at DOE, as how they were evaluating, ranking, and selecting the projects, we found that some of the awards that appeared weak in meeting all of the evaluation criteria, especially as it related to solving some of the acid rain issues. Some technical readiness issues were observed that surfaced, that showed up in major project delays and completion date slippages. This caused us to

think, in the early '90s, that perhaps too much money may be chasing less than the best projects. We suggested that the program be slowed down a little bit in awarding new money to new projects again in 1990.

We also did some work looking at the potential for the utilities to use the clean coal technology and found, at that time, a cloudy vision for the future. Their interest was relatively low at the time. Most utilities were not sure what the future demand for coal was going to be, given the expanding natural gas availability and pricing structure. We are uncertain, at this time, and suspect that the future and the vision still may be cloudy today.

1991--we raised concerns about how we were using federal funds to support projects that were close to commercialization. We also raised concerns related to being unable to find buyers for the developed products and the technologies.

1994--we commended DOE for doing good cost-sharing features of the cooperative agreements that they put in place to be used in the Clean Coal Program. The process of using multiple solicitations in stages allowed DOE, as the program progressed, to make major improvements and adjustments to how the program was being run. Some earlier problems with financing, with proprietary data handling and sharing of costs were improved. However, the instances of continuing

project delays, cost increases, and compliance issues, and projects still changing locations throughout the country, remained.

1996--we looked in general at recovering federal investments in technology, especially if the products were being used overseas. Having flexible repayment provisions, such as was used in the Clean Coal Program, was found to be a positive thing. Adjustments were made and an increased federal cost recovery was achieved. However, again, some of the companies continued to be concerned about lowering their rate of returns which may have, at that time, discouraged some participation. Even the agency themselves worried about the administrative burden of negotiating, auditing, and enforcing repayment provisions.

Year 2000--our most recent work for the House Budget Committee were, we were asked to go in and focus on the money that was left in the program and what was happening with 13 of the projects that were remaining that had millions of dollars unspent. Five of those projects were nearing completion and the remaining eight showed signs of the same problems that we had seen over the years--serious delays in being completed--2 to 7 years; continuing financial problems with company financing, including ongoing bankruptcy procedures--proceedings. And once again, we observed that projects continued to be moving around the country, cities to

cities, owners to owners, in some sense, continuing to look for success.

In summary, I think I will stop here, Mr. Chairman. My time is running out. The Clean Coal Program clearly has had its ups and downs. Today, as you and fellow Members of the Congress are addressing today's energy challenges, we would hope that you would take some of the lessons learned from the Clean Coal Technology Program to allow you help decide how you would like to spend your future research dollars. Mr. Chairman, this concludes my short summary and I would be glad to answer questions at the end of the Panel presentation. Thank you.

[Statement of Mr. Wells follows:]

********** INSERT 4 **********

Chairman BARTLETT. Thank you very much. Ms. Abend, welcome, and you may proceed. Could you turn on your microphone, please?

STATEMENT OF KATHERINE ABEND, GLOBAL WARMING ASSOCIATE, U.S. PUBLIC INTEREST RESEARCH GROUP, WASHINGTON, D.C.

Ms. ABEND. Good morning. My name is Katherine Abend, and I am the Global Warming Associate for U.S. PIRG. Thank you, Mr. Chairman, and the Subcommittee for the opportunity to testimony on our views on the Department of Energy's Clean Coal Technology Program.

U.S. PIRG is the national lobbying office for the state Public Interest Research Groups. The PIRGs are nonprofit, nonpartisan and work on environmental, consumer, and good government issues across the country.

We believe that the so-called Clean Coal Program is mismanaged and threatens public health and the environment by subsidizing the burning of dirty coal. Since 1985, the DOE's so-called Clean Coal Technology Program has received more than $2.3 billion in federal funds, as well as hundreds of dollars through a separate DOE coal research and development program. Unfortunately, there is no such thing as clean coal. Proposed clean coal plants will still emit carbon dioxide, which causes global warming, smog-forming nitrogen oxide, lung-damaging particulates, toxic mercury, which contaminates water and land.

Now President Bush wants to waste an additional $2 billion subsidizing the coal industry. It is time to protect our pocketbooks and stop wasting money on so-called clean

coal programs, and it is time to protect our health with stronger clean air standards. It is time for the wealthy coal industry to finance its own research.

No Clean Coal Technology Program can eliminate carbon dioxide pollution, nor would they need to. Reducing carbon dioxide emissions is not a criterion for the program. In fact, some attempts to reduce emissions of NOx, SOx, and mercury from coal-fired power plants results in greater emissions of carbon dioxide, the main component of global warming pollution. In all, coal-fired power plants are responsible for 27 percent of total U.S. global warming pollution. Last week, the National Academy of Science released a report confirming that there is a consensus in the scientific community that global warming that has occurred in the last 50 years is likely the result of increases in greenhouse gases.

Extreme weather events, which are associated with global warming, are on the rise. According to U.S. PIRG's recent report, worldwide, the number of great weather disasters in the 1990s was more than five times the number for the 1950s and the damages were more than ten times as high, adjusted for inflation. In the United States, extreme weather caused $204 billion in economic losses during the 1990s. Clearly, global warming is too expensive to ignore.

Coal-fired power plants emit 90 percent of all pollution

from the electric industry. The four main pollutants, NOx, SOx, CO2, and mercury, cause serious environmental health threats, including smog, particulates, acid deposition, and toxic impacts to health and ecosystems.

Fine particulate pollution from U.S. power plants is responsible for the deaths of more than 30,000 people each year. Eighteen thousand of these could be avoided wit[illegible] 75-percent reduction in emissions. A typical coal-powered plant releases about 170 pounds of mercury, a neurotoxin, into the air annually. Less than a teaspoon deposited in a 25-acre lake can make the fish unsafe to eat. Most so-called clean coal systems in use remove less than 30 percent of mercury.

Clearly, burning coal has a huge impact on our health and environment. Unfortunately, the Department of Energy's optimistically named clean coal programs subsidize burning more dirty coal. Billions of dollars have been spent, yet our health and that of the planet is threatened by dirty coal plant emissions. So called clean coal still leads to more dirty air. According to a General Accounting Office report, emerging coal technologies will probably not contribute significantly to the reduction of acid rain causing emissions in the next 15 years.

The DOE's own evaluations of some of its projects show that new coal technologies were 40 percent less effective in

667 removing SO2 emissions than conventional smokestack
668 scrubbers.
669 Clearly, more subsidies will not help protect public
670 health. Unfortunately, some coal supporters are proposing to
671 squander even more money and explicitly roll back health
672 protections. Twenty-four senators have co-sponsored S.60 an
673 industry-backed bill to spend $1 billion over 10 years for
674 research on clean coal, and up to $6 billion in tax breaks
675 for utilities to upgrade plants or building new ones using
676 the technology. This bill would exempt even new coal
677 technology from its promises. Congress should oppose this and
678 other harmful bills that would waste our money and weaken
679 clean air protections.
680 Environmental problems are not the only shortcomings of
681 the clean coal programs. Since its conception, clean coal
682 technology has been marked by mismanagement. The GAO has
683 released at least seven reports documenting waste and
684 mismanagement in the Clean Coal Technology Program. Last
685 year, in a sampling of 13 government-supported clean coal
686 projects, GAO watchdogs found 588 million in unspent federal
687 funds. As of March 2000, 1/5 of the total projects had either
688 been withdrawn or eliminated.
689 The Clean Coal Technology Program is redundant with the
690 Clean Air Act Amendments of 1990, which already create
691 financial incentives to develop cleaner burning coal

technologies by allowing utilities to buy, sell, and trade emissions allowances to reach required emission levels.

For the past 8 years, U.S. PIRG has been working to cut polluter pork programs, federal spending or subsidies that harm the environment at taxpayer expense. Our coalition of environmental, taxpayer, and safe energy groups has helped to save taxpayers nearly $24 billion by cutting funding for harmful programs. In February, the PIRGs released with other groups, the Green Scissors Report, which recommends cutting 74 wasteful, environmental-damaging programs to save taxpayers $55 billion. One of these programs is the so-called Clean Coal Technology Program.

The coal power industry is mature and lucrative. At a time of scarce federal dollars, these industries should be weaned from the federal dole. Some of the Nation's largest and wealthiest corporations are also--are beneficiaries of the program, including General Electric, United Technologies, and Westinghouse. General Electric reported record earnings of over $3 billion for the first quarter of 2001.

The GAO seems to agree that these mature, profitable companies do not need subsidies. In an audit, the GAO noted that clean coal technology spending may not be the most effective use of federal funds. For example, some projects are demonstrating technologies that might have been commercialized without federal assistance.

Any legislation from the House Science Committee authorizing funding for the DOE should phase out wasteful spending on clean coal programs and increase funding for energy efficiency and renewable energy programs. Continued subsidies for the polluting coal industry creates an unfair playing field for clean energy sources. Congress should reauthorize the 588 million in unused clean coal funds to pay for part of the following proposals.

There are clean, affordable energy alternatives. Energy efficiency offers the fastest, cleanest, cheapest solution. Americans today consume 40 percent less energy and thus have 40 percent lower energy bills as a result of smart energy efficiency policies created over the past 25 years.

President Bush's proposed energy budget would cut funding for some energy efficiency and renewable--would cut funding for energy efficiency and renewable energy programs in half. Instead, this Committee should direct the Department of Energy to double funding for energy efficiency between 1998 and 2003.

According to the DOE, 100 square miles of solar panels could meet the annual electricity needs of the United States. Meanwhile, wind energy is now cost competitive with fossil fuel energy in some areas. The Bush Administration cut funding for renewables by nearly 50 percent. Instead, this Committee should direct the DOE to increase funding for

renewable research and development to over $750 million per year.

In conclusion, we believe that the so-called Clean Coal Program is mismanaged and threatens public health and the environment by subsidizing the burning of dirty coal. This Subcommittee should seize the opportunity to end the oxymoronic Clean Coal Program. Thank you.

[Statement of Ms. Abend follows:]

********** INSERT 7 **********

751 Chairman BARTLETT. Thank you very much. Mr. Mead.

STATEMENT OF JOHN S. MEAD, DIRECTOR, COAL RESEARCH CENTER, SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE

Mr. MEAD. Thank you, Mr. Chairman. Mr. Chairman, and, members of the Subcommittee, while the future of coal's use is really a national concern, some states have taken a leading role in supporting clean coal research, development, and deployment. Midwestern states, with their high-sulfur coal reserves, have been significant stakeholders since the 1970 Clean Air Act Amendments. These states, particularly Ohio and Illinois, have been frequent participants in U.S. DOE clean coal projects.

In the past year, the State of Illinois has taken dramatic steps to increase the development of new power generation with a strong emphasis on development and deployment of clean coal technologies. Mr. Chairman, I think I can say that Illinois is very enthusiastic about clean coal technology.

Illinois has been a pioneer in the development of these technologies, dating back to the early 1970s, with the development of the first generation of fluidized bed combustion, the earliest gasification tests, and other technologies designed to help the high-sulfur coal reserves of the state.

That has continued with a partnership with the U.S. Clean Coal Technology Program and with significant state programs

that are--that have been developed with industry and without federal government support.

This year, the Illinois General Assembly, with the support of Governor Ryan, developed a dramatic new set of coal-enhancement programs, including a total of $3.2 billion of state resources dedicated to the development of new power generation capacity, particularly coal-fired capacity. These incentives include $500 million in potential grants from state funding for new development of projects; $1.7 billion in revenue bond authority to provide loans for the development of new power plants; and $300 million in the development of advanced systems, including alternative technologies, the improvement of the infrastructure of power transmission.

And included in this will be an examination of where it may be appropriate to increase and further strengthen the state's Clean Air Act laws as they are applied to older, existing power plants. And these are power plants that will have higher emission levels than new generation because of the nature of the requirements for new power plants under the Clean Air Act.

Exploratory clean coal research and development with an emphasis on eventual commercial adoption of clean coal technologies, is another hallmark of Illinois' program. Southern Illinois University has been involved in the

development of an exciting new program, based on $25 million of funding from a major state utility, to develop and commercialize more advanced coal technologies. We issued our first request for proposals one year ago and we are very excited to receive 16 proposals from projects that would total over $400 million in investment in new power generation capability. This was a single program developed by a single state at one of its universities. A very dramatic development--and I think one that in the recent months has been amplified in Illinois and throughout the country with a tremendous increase in the interest in new power generation.

While Illinois is really emphasizing the development of commercial projects, there is a very significant need for the continued development, aggressive development, of very advanced ultra clean coal-fired capacity for this country. This is still at the level of exploratory research and pilot scale development. This is an area where a single state or groups of states interested in coal production and power generation cannot, on their own, solve these technical scientific problems. We need the help of the Federal Government. We need the continued support of the Department of Energy.

Mr. Kripowicz and Mr. Yamagata talked about the need for the development of these high-performance, high-efficiency systems. I agree. I believe that we need increased federal

support for these very advanced technologies that can promise both reduced emissions of global climate-changing gases and of the current criteria pollutants, as well as increased efficiency and better mining methods. Together and integrated, these technologies can provide a truly advanced clean source of energy for our country for the next hundred years. Mr. Chairman, thank you very much.

[Statement of Mr. Mead follows:]

********** INSERT 6 **********

Chairman BARTLETT. Thank you very much for your testimony. I want to thank all of the witnesses for their testimony. Obviously, some differences of opinion. I hope we will have a chance to explore those. And later on in the hearing, I will invite members of the Panel to pose questions for other members of the Panel because we want a full airing of all of the issues today. And a whole lot more wisdom is represented at the witness table than represented here at the dais. So we will invite you to ask questions of each other later.

I want to note now that we have been joined by my colleague, Ms. Hart, and by our Full Committee Chair. And I would like to yield my first-round questioning time to our Full Committee Chair.

Mr. BOEHLERT. Mr. Chairman, I appreciate the courtesy, but I prefer to take my turn. That is the way we operate in the Full Committee, first come, first serve, and those of you who have been through the entire hearing deserve to have their questions asked first. I will be the clean-up batter.

Chairman BARTLETT. Well, thank you, and I will follow you as clean-up batter then. So let me now turn to Mr. Costello.

Mr. COSTELLO. Mr. Chairman, thank you. Mr. Kripowicz, one is, you have testified, as some of the other members of the Panel have testified, that the Clean Coal Technology Program has worked. How do you see the $2 billion proposal that the

President has submitted to the Congress and to the American people for a clean coal technology impacting the future of technology in the area of clean coal?

Mr. KRIPOWICZ. Mr. Costello, I think it builds on what is already a successful program. You know, since the program was introduced, several things have happened. One, there have been tighter environmental controls put in place and there are ~~perspective~~ prospective environmental controls, for instance, on mercury that are going to be put in place and in ozone coming up in the future. These things were not addressed in the original program.

Secondly, there is a large requirement for power plant construction that did not occur in the original period of the Clean Coal Program. Actually, over the past 10 years, there ~~was~~ were only about 10,000 megawatts of coal capacity built in the United States. And so with the requirement for power we would expect a large increase in that requirement.

And, thirdly, there is a lot of new technology that is in the development stage now that was not available in the early '90s when this program was initiated. So the demonstration of that technology, which will lead to higher efficiency and lower pollution from coal plants is what the attempt of the new Clean Coal Program would be.

Mr. COSTELLO. On page 5 of your testimony, Mr., Kripowicz, you indicate the cost benefits of clean coal

technology. And I guess I have two questions. One, you say that the American people pay over 200 billion a year for electricity and you attribute the low cost of electricity to, in fact, coal in the Clean Coal Technology Programs. In fact, you say the lower cost clean coal technologies that have become available in the '90s are one reason why the Nation's utilities could meet new environmental standards with imposing harsh price hikes on rate payers.

I wonder if you might rest two issues here. One is, what initiatives are we currently working on as far as clean coal technology? And, number two, as Ms. Abend has suggested, we know that over 50 percent of the electricity generation today through power plants is--that are coal-powered plants. And I am wondering if we stopped the use of coal tomorrow, one, do we have something to replace it with, and, number two, what would happen to the rate payers?

Mr. KRIPOWICZ. Well, to answer the second question first, it is apparent currently that with the large amount of construction of natural gas-fired power plants, which are, I will admit, somewhat cleaner than coal plants are currently, we have run into a problem of natural gas supply. If you remove the 50 percent of electricity that is generated from coal, there would not be any substitute on an immediate basis for that. So it wouldn't be a question of a rate ~~chalk~~ hike, it would be a question of not having enough electricity,

particularly in the short term.

In the long run you need a balance. It is clear that the utility industry is still going to build a lot of natural gas plants. As much as they can get a cheap natural gas-fired facility, they will go to that rather than building a slightly more expensive coal plant--for two reasons. One, because of the economics, and, two, because it is easier to meet the environmental requirements.

But in addition to coal and natural gas, you also have to look to nuclear and renewables and hydro and other things in order to meet the overall electricity requirements of the country. You need a balance--not just clean coal, not just natural gas. You need to do all those things.

Mr. COSTELLO. And--

Mr. KRIPOWICZ. I would also say you need to--in reference to some of the testimony, you do need to increase efficiency in the Administration. And their National Energy Policy has quite a few initiatives in that area.

Mr. COSTELLO. And the last question--what initiative are you currently working on that will improve the current clean coal technologies?

Mr. KRIPOWICZ. Our largest research and development initiative right now is what we call Vision 21, which is a flexible coal-fired power plant, which would, in the future, double the efficiency of coal plants and decrease the

emissions of pollutants to well below the new source performance standards there are now. In addition, we are developing carbon sequestration technology and coal-burning technologies that would be compatible with that so that, in addition to reducing CO2 emissions by increasing efficiency, we would also be able to capture the remaining CO2 at reasonable costs.

Mr. COSTELLO. Mr. Chairman, I have other questions, but I see I am out of time. So hopefully we will have another round or two. Thank you.

Chairman BARTLETT. We will, indeed. Thank you very much. We will recognize witnesses who were here at gavel fall in the order of their seniority. For those who appeared after gavel fall, in the order of their appearance at the Committee. So, Mr. Smith, you are recognized.

Mr. SMITH. Mr. Chairman, thank you very much. You know, I am sorry I missed some of it. In the clean coal technology, if we were to be more aggressive with our research funding and our efforts, is it--could you foresee an effort where we could reduce 95 to 98 percent of the pollutants and cut in half the CO2 discharge? What are the possibilities technologically if we were to put our shoulder to the research wheel?

Mr. KRIPOWICZ. Mr. Smith, those are exactly the kind of targets that we have--is to reduce the pollution by 95 to 98

percent and also to double the efficiency of coal-fired power plants. The time frame in which that can be done, it depends a lot on the existing coal-fired fleet. You just can't ~~you can't~~ economically replace that fleet all at one time, so it will be done over a considerable period of time. But by the year 2010 or 2015, we should be well on our way to replacing a lot of that capacity which much higher efficiency technology and lower polluting technology.

Mr. SMITH. Mr. Mead, any other comments?

Mr. MEAD. Yeah. I think it is a goal that science can achieve. And research and further development in a variety of energy sources is critical for this country. But the investment in increasing the efficiency and the cleanliness of coal, I think, is crucial because we are using so much coal today and are likely to continue to for some time. The reduction of greenhouse gases, such as carbon dioxide, that is one of the great issues in terms of technology today and energy. But advances are being made. There are now concepts out there that are past the point of just being discussed. They are not being looked at in the laboratory. That is a very good sign. The development of energy processes is a slow task because of the size of the power plants. But I think with government help we can accelerate that effort.

Mr. SMITH. The Chairman said earlier--Mr. Yamagata, did you have a comment?

Mr. YAMAGATA. Thank you, Mr. Smith. Yes. In my testimony, I referenced a number to answer your shoulder-to-the-wheel question, of about $10 billion over the next 20 years, which is, at least in our estimation, a cost-share arrangement between the public sector and the private sector. And that kind of an aggressive program, that is time and money, over that period of time, will, we think, achieve the kind of performance criteria that you outlined, that is, cost competitive, certainly exceeding the emission requirements and regulations that we have today and into the future, and also addressing issues like CO2 emissions.

Mr. SMITH. And would this--then does it become less relevant whether it is high sulfur coal or whether it is the cleaner, lower-sulfur coal? I mean, will the technology be so that it doesn't make that difference--really much difference on what coal you use?

Mr. YAMAGATA. That is correct. It is nondiscriminatory to the type of coal that you use.

Mr. SMITH. In terms of our--the other areas becoming less dependent, the Chairman said earlier that it is a national security issue being--having this kind of dependency, especially on the OPEC suppliers for our petroleum energy. Are we looking--and I am trying to see whom ought to answer this question--it might be the next Panel. Are we aggressively looking at developing the kind of infrastructure

and laws in some of the other areas of the world in terms of importing some of our petroleum energy from those other countries rather than from the OPEC countries? Does anybody know that answer? Mr. Chairman, you probably know that answer.

Mr. KRIPOWICZ. Yes, sir. The Department of Energy, over the years, has worked a lot with countries outside of OPEC and is working very hard, for instance, with countries in this hemisphere also, Canada and Mexico, in particular, to develop their sources of oil so that we won't be entirely dependent on OPEC. There is no question that we need to develop diverse sources of oil in the world as well as our own resources.

Mr. SMITH. Do we--do I understand we have the technology now and it is simply making it more cost effective in utilizing that technology, or is it developing new technology? And I see my time has expired.

Mr. KRIPOWICZ. Mr. Smith, I think it is a combination of both. Some of it needs to be made more economic, but I am willing to bet that we will find new technologies, as we go along, that we don't have in place right now.

Mr. SMITH. Thank you for the opportunity, Mr. Chairman.

Chairman BARTLETT. Thank you. Ms. Biggert.

Ms. BIGGERT. Thank you, Mr. Chairman. Ms. Abend--is that right--Abend?

Ms. ABEND. Yes. Abend.

Ms. BIGGERT. All right. Thank you. It seems that we are in a technological revolution in most everything in our lives and yet we are still in the dark ages as far as some our technology for energy is and we have spent nothing really in the last 10 years probably with the energy policy. Does PIRG see a way to continue our economic and technology expansion and continue to improve our standard of living and provide for an increased population without gaining access to additional fossil fuel supplies?

Ms. ABEND. I think what we need to focus on right now is finding a smarter, cleaner energy future. We can meet 60 percent of our Nation's future energy needs through energy efficiency and renewable energy by 2020. Forty-eight percent of the 1,300 plants that President Bush proposes for his energy plan are already under construction. So I think that we do have adequate options for meeting our future energy needs.

Ms. BIGGERT. But--well, you talked about like 100 square miles of solar power would produce how much--

Ms. ABEND. Would produce as much energy as the United States used--uses annually.

Ms. BIGGERT. Why--if that was possible, why wouldn't be doing that now? You know, I have driven by those windmills in Palm Springs and they seem to be going like mad, but that is

a huge area that only powers such a small part of California.

Ms. ABEND. Right. Well, these programs don't receive sufficient funding. And compared with the funding that fossil fuel programs receive, they are not on a level playing field. The Bush Administration cut funding for renewables by nearly 50 percent from 376 million to 186 million in its budget proposal. That is why we strongly support DOE's energy programs, but we encourage these programs to be expanded.

Ms. BIGGERT. But--

Ms. ABEND. And DOE should increase funding for those to $750 million a year.

Ms. ABEND. And how long would that take to develop such a plan? And we--only 2 percent of our energy is--

Ms. ABEND. Well, the technology is already available. For example, wind power is already competitive with fossil fuel in some situations. Other countries are way ahead of this on this, and we should be the leaders of this technology. For example, Denmark, very soon is going to be having 50 percent of its power coming from wind. So these aren't things that need to be so far off in the future if we increase funding for these programs.

Ms. BIGGERT. Well, I think we really need to look at renewables, but, you know, the size of Denmark compared to the size of the United States in trying--I don't know, coming from Chicago, where we didn't--

Ms. ABEND. Right.

Ms. BIGGERT. --see the sun for at least 3 weeks in a row. How do you--

Ms. ABEND. Right. Well--

Ms. BIGGERT. How do you store that power?

Ms. ABEND. --6 percent would be--yeah, 6 percent of the continuous United States land area could actually produce 1-1/3 the amount of electricity that the United States used in 1999. So it is just really a matter of focusing on these programs.

Ms. BIGGERT. Mr. Mead, in your presentation, you talked about Governor Ryan's initiative and what is going on. How can--can you suggest ways in which the state programs and federal programs can increase their coordination and collaboration? Do you think there is enough of that right now or are there impediments in the federal program to really provide the benefit and usefulness to the--to Illinois and other states?

Mr. MEAD. There has been a lot off cooperation and collaboration over the years, as I address in my testimony. One of the factors that I think would be very useful is that both programs operate often on a competitive selection basis and independently. And so that a project selected through review by a federal agency may be different than one that is chosen at a state level. There could be, perhaps, greater

examination of the common issues and needs in a region where projects that would have particular value for Illinois or the Midwest could be factored into the federal program.

In addition, I want to emphasize again the critical need for advanced research and development on issues that we do not face today with our current regulation, but issues that we expect to face in the future. The overall reduction of all emissions is going to be crucial for the life of the coal industry, such as Illinois. We have experienced this with the sulfur issue. Now, we look ahead and see other issues for the future.

This is where, I believe, the Federal Government can really dovetail with state economic development efforts and nearer-term state efforts.

Ms. BIGGERT. Thank you. Thank you, Mr. Chairman.

Chairman BARTLETT. Thank you very much. Ms. Hart.

Ms. HART. Thank you, Mr. Chairman. I am glad to see a hearing being held on this issue. I--and I am sure a lot of other members represent some very interesting technology organizations. And I have a company in my district, actually, called Export Tact that some of you may be familiar with. It is developing and continuing to research advanced form of clean coal technology--one that cleans the coal removing mineral impurities using magnets resulting in a coal waste that can be returned to the environment without being

hazardous and also, obviously, a cleaner burning coal.

I know that there is a lot of other technologies out there and I am glad to see them. I think it has been a long time in coming and I am also pleased to see some of the progress, you know, made by organizations within the government and some of the research.

I think I have a general question, basically, for the Panel. As far as, you know, we are focused on the first Panel pretty much on clean coal technology, but I am interested in a general question of future resources to--future sources of energy, future sources of energy, especially electricity. And as we look to the future, unfortunately, I think, we have taken a turn toward using natural gas for electricity. And I would like your opinion on that as a direction. I would like to know if you think we made a wrong turn and if you think that we have to turn more heavily toward coal from natural gas.

Mr. KRIPOWICZ. I think the industry turned to natural gas because it was the cheapest available alternative and the industry will go to the most economic thing that they can do. And the problem with exclusively burning natural gas, of course, is that ~~there~~ you run into supply problems. At least you do on any foreseeable basis that we can imagine. There is a very large supply of natural gas in the country, but demand, even with reasonable expansion of the electricity

market, is supposed to go up by 60 percent by the year 2020. So there is a tremendous demand on natural gas, mainly from the utility business. And at that, natural gas would still only be about 25 percent of the installed utility capacity. So you need to continue to look at the other resources and coal is one of those.

Now, I would be the first to say that what we don't want to do is put in coal plants that are just like the ones that have been in existence for the past 25 years. We want to build cleaner, more efficient, coal plants, that have much less environmental impact. I think we also need to look at the nuclear option to see whether we can extend the existing nuclear plant life and increase the efficiency of those plants over a period of time.

And we also have to look at renewables. Not just hydro, but solar, as other Panel members have said, because in certain circumstances, those kinds of technology will be economic. But I believe we need to look at all of those things.

Mr. YAMAGATA. Ms. Hart, if I may just add to that? Let me quote to you a quote from William Wise, the Chairman and CEO of the El Paso Corporation, which happens to be the world's largest natural gas pipeline company. He says--I quote in the Utility Spotlight of March 5, 2001--''Conventional sources of natural gas in North America won't be able to produce enough

deliverability to meet the kind of demands that power generation is going to drive.'' And I think the point that you made is absolutely right on.

I want to second what Mr. Kripowicz has said, and that is, it seems to me we need to be looking at and trying to develop all of our energy resources, as well as all of our energy efficiency and energy conservation and renewable endeavors that we have in mind. Frankly, we need them all.

One of the issues that has not yet been made in this Panel discussion is, with respect to coal and with deference to my other Panel colleagues here is, we are not just going to use coal in the United States where we have a 250-year supply and it supplies 51 percent of the current electrical base in this country. We are going to use it around the world. We are going to use it in China and India and other places like that. And the promise of better, cleaner coal technologies is something that we ought to be aware of. It is a technology transfer and an export opportunity for this country, but it is also something that is the resource itself, that is going to be used around the world. And we, perhaps, as stewards of the planet, have an obligation, it seems to me, to try and make that use as clean as possible.

Ms. HART. Go ahead, Mr. Wells.

Mr. WELLS. In terms of your resource question, whether it is $2 billion or the current proposal of the 10 or $20

billion, the niche in the market for GAO would be to look at whether these resources are spent effectively and efficiently and we are getting the biggest bang for the buck. I would agree with my panelists that history has shown us that you need a balance of energy sources, and much of what we have seen in the natural gas market right now would be the demand far exceeded the supply and it was driven by some policy considerations that put the market in and up and down situation. So future deliberations on energy sources should include a balance from all sources, including coal.

Ms. HART. Thank you. I see my time is up, Mr. Chairman.

Chairman BARTLETT. Thank you very much. And now, our Full Committee Chair, Mr. Boehlert.

Mr. BOEHLERT. Thank you very much, Mr. Chairman. Ms. Abend, I agree with much of what you say and it probably will come as no surprise to anyone in this room, given where I come from, acid rain entered the Nation's vocabulary as a result of the havoc being wrecked on the beautiful Adirondacks in my neighborhood. And I certainly agree with your comments on global climate change. It is for real. It is not some vast left wing conspiracy. And I also agree with your commentary about the need for a greater investment, not lesser investment, in renewable energy sources and energy efficiency. And I am trying my darnedest to convince the administration that they should take a different path in some

of these areas as they address the energy problem we face in America.

But some of what you say gives me pause. You summarily dismiss clean coal technology almost out of hand. I don't think that is the right thing to do. I have been supportive in the past. I have been skeptical. I am still supportive. I am still skeptical. I would like to think that this Committee would authorize programs where we have guaranteed success all the time. That is not the nature of research and development. We have to venture forward and with the best hopes and expectations.

And as I look over some of the testimony, I--and I refer specifically to Professor Mead. And one part of his testimony says, the eventual application of ultra clean systems will hold tremendous value to a Nation whose greatest fossil energy resource is coal. We can't escape the fact that coal now provides more than 50 percent of our electricity-generating capacity in America, nor should we ignore the potential for wind energy and solar energy and hydro energy and biomass.

I think what we have to do is come up with a balanced program, and I am trying very, very hard to convince the Administration of that. I think the initial proposal advanced by the Administration focused almost exclusively on supply. We can't drill our way out of this problem, but we can't

conserve our way out of the problem. We need balance. And I am also mindful of the statement made by Mr. Wells as he looked at the Clean Coal Technology Program. And, among other things, he pointed out there have been successes and there have been failures, and some of those failures have been costly. But I would suggest that the investment, if very carefully monitored, can offer us what Mr. Mead wants and what we all want.

And, as Mr. Wells said in his testimony, this program serves as an example to other cost share programs in demonstrating how the government and the private sector can work effectively together to develop and demonstrate new technologies. That if my hope for this program.

You said there is no such thing as clean coal, and I would essentially agree. But there is such a thing as much cleaner coal, much lower emissions. And that is what I am driving at. I have the definitive bill in this session of Congress to deal not just with nitrogen oxide and sulfur dioxide, but also with mercury and CO2, which is for real. And the President has now acknowledged that CO2 is for real. Those are the words I would like to see some deeds follow. And I think working constructively with the Administration, we will see them.

But I guess in this long commentary, I would just urge you and your associates in PIRG, not to summarily just

dismiss something that has potential of doing the right thing for all the right reasons, but try to work with us to develop a program that is responsive to our needs, that is cost-effective, and moves us in the direction, I think, you and I would agree we should move on.

With that, let me just ask you if you--if there is any hope that we can convert you to have sort of a glimmer of hope that maybe, maybe, we could get something positive out of the Clean Coal Technology Program, given the proposition that I agree with you, more investments needed in renewable energy sources, more investments needed in energy efficiency. We have to forthrightly address CO2. There are a lot of things we have to do and so there is a lot of area of agreement. But I will give you the opportunity now.

Ms. ABEND. Well, first of all, I would like to say that we strongly support your Clean Smokestacks Act of 2001 and, you know, that would reduce NOx and SOx, or smog and soot emissions, by 75 percent and mercury emissions by 90 percent and global warming pollution or CO2 pollution to 1990 levels. And I think the key there is that it imposes strong standards that will need to be met. The truth is, that burning coal will always produce pollution, especially carbon pollution, which causes global warming. Burning coal accounts for about 1/3 of global warming pollution, and we feel that the Federal Government should not be using taxpayer dollars to encourage

its use.

Now, obviously, as you said, we would rather have cleaner coal than dirtier coal. But we believe that polluters, not the public, should pay for cleaning up pollution. That is why we--

Mr. BOEHLERT. Let me reclaim my time, if I may, because you got a nice prepared statement and I appreciate that. But I would agree with you that coal is a problem right now and your figures are probably very accurate. I haven't verified them, although I have trust--the 1/3 figure you used. But I don't like that. You shouldn't like it either. I don't accept that. You shouldn't either. And that is why we are talking in terms of investing important and scarce taxpayer dollars in the research and development that is going to lead us to a better day. And I would just hope that you would give some consideration to the possible--to the potential for this program if we do it the way we should do it.

And I want to thank you very much for your commitment. And I want to thank all the witnesses because you are stars here. You are resources for the Committee and we really appreciate it. In fairness, since I am calling for a balanced policy, Mr. Yamagata, maybe I ought to give you some time to comment on my little discourse here.

Mr. YAMAGATA. Mr. Chairman, thank you very much. I will just take a second of the Committee's time and note, if I

may, that in the vein of the line of reasoning that you have so eloquently developed, it seems to me that our goal here ought to be to take issues about environmental concerns out of the question about whether or not we can and should use coal. And we need to do that, I think, by making a commitment to the development of those technologies that I believe both the government and industry believes is within the realm of the possible. It will take time. It will take a financial commitment. We have a history of having made real progress, really, since the 1970s in terms of emission reductions from the use of coal. It seems to me that is a better set of metrics from which to judge than one which simply says we shouldn't use it at all.

Mr. BOEHLERT. Thank you very much. Mr. Chairman, thank you for your indulgence.

Chairman BARTLETT. Thank you very much. Mr. Wu has joined us. Mr. Wu.

Mr. WU. Thank you very much, Mr. Chairman. In some respects, I am catching up a little bit to testimony which has been given earlier. But I would like the Panel to clarify for me that if we are not focused on clean coal or other clean technologies--let us just focus on clean coal. What would be the CO2 impact of alternative technologies to the coal technology that we are talking about?

Ms. ABEND. Obviously, there are a lot of renewable energy

sources that don't produce any CO2. We talked about wind technology, solar technology. And then I would just also like to stress that another alternative is just to improve efficiency. Like I said, we can meet 60 percent of our future energy needs by improving efficiency. One example of a way that we can do that is to improve auto fuel efficiency standards. If we increase those to 40 miles per gallon, we would save 15 times the oil in the Arctic National Wildlife Refuge. So there are a lot of viable solutions out there that don't produce any carbon dioxide, and we really need to focus on putting as much energy as we can into those solutions.

Mr. WU. Let us come back to that in a second. Mr. Kripowicz.

Mr. KRIPOWICZ. Mr. Wu, one of the things about the clean coal technologies that we are developing is that we--in the long term, we expect them to be almost double the efficiency of existing power generation technologies. So we would be talking about reducing CO2 emissions just with that technology itself by around 50 percent. In addition, the Department is working to develop economic methods of sequestering carbon from the air. And if we can do that on an economic basis, then we could essentially have zero carbon emissions coal technology as well as other technology.

If we can get indirect sources of--indirect ways of capturing CO2, we could actually help reduce the emissions

from other sectors of the economy than electricity also. It doesn't have to be coal related. It is any kind of carbon. So you could also affect the CO2 emissions of the transportation industry, for example.

Mr. YAMAGATA. Mr. Wu, if I may, a rule of thumb, if you will, with respect to increased efficiency of coal plants, for each percentage increase in efficiency, say, going from a 30-percent conversion--I take a lump of coal and I get 30 percent of its useful energy out of that coal if I produce electricity, which is kind of today's technology. But if I could produce 60 percent out of that lump of coal, I also, at the same time, reduce on a percentage-basis the amount of CO2 that I would emit in the reverse order, just as a point of reference.

The second point, to get back to the question you originally raised, that nuclear energy is--has no CO2 emissions, just as a point of reference.

Mr. WU. Would you care to discuss any other benchmark technologies other than nuclear?

Mr. YAMAGATA. I think you can look across the board at hydro. You know, there--the point here is that all of these resources that we are blessed with have their own constraints, whether it is nuclear or hydro or renewables, frankly. One of the large problems with our wind energy, which happens to be economic today, and we support it, is

just the siting of wind systems, which you may well be familiar with. But they all have their problems.

Mr. BOEHLERT. I have got some locations in upstate New York for you, if you would like.

Mr. YAMAGATA. I know you do, Mr. Chairman.

Mr. WU. While we prize our hydro systems in the Pacific Northwest, we have become acutely aware of some of the downsides of renewables, whether it is wind or hydro or other sources. I guess leaving that fertile terrain behind for the moment, perhaps some of you could address the topic of burning, as you say, a lump of coal, and getting 30 percent energy--useful energy out and, I believe, primarily using that for electricity generation versus piping fuel directly to the site where the electricity would otherwise be used and the relative efficiency of those two different systems.

Mr. KRIPOWICZ. ~~I--with~~ distributed energy systems, which I think is what you are referring to, in most cases, the fuel you have to use is natural gas. You know, if you pump the fuel directly to a small electric generator, the fuel you have to use is natural gas. And the question then becomes how much natural gas do you have available. I would also point out that you can gasify coal and you can also use that to run fuel cells and other kinds of distributed generation also. So ~~I mean, you know--and there are--~~there is a plant that has been in existence for a long time in the United States in

North Dakota that produces pipeline quality gas that can do the same thing from coal.

Mr. MEAD. I think another factor is that coal is also a good source of other products, chemicals, carbon-based materials. So power generation with a co-production of other materials, is another way of gaining efficiency. And in some sense, co-generation is another type of distributed power generation. So coal, as our most plentiful source of carbon-based products, is a very important resource beyond energy. And the combination of energy and other products can really raise the efficiency of the overall system.

Mr. WU. Mr. Chairman, thank you very much for recognizing me. I think in what feels to me like record time, but I see very quickly we are in the red-light zone already. Thank you very much. Thank you to the Panel.

Chairman BARTLETT. Thank you very much. Mr. Kripowicz, did I hear correctly that new techniques in Southern California enabled them to find a million barrels of more oil? Was that the correct number?

Mr. KRIPOWICZ. Yes, sir. They had actually produced over the life of the field only about a million barrels. And--

Chairman BARTLETT. Now, they produced a million more. I just wanted to put that--

Mr. KRIPOWICZ. And then they produced in this 3 or 4-year period an additional million barrels. So the technique not

only allowed them to go back--

Chairman BARTLETT. Yeah.

Mr. KRIPOWICZ. --to the kind of production levels they had before, but actually to exceed those levels.

Chairman BARTLETT. That is a lot of oil. But I just wanted to put that in perspective. That is about 1/20 of one day's use of oil in this country. Ms. Abend, recently I met with the Vice President. I reminded him that this President is my President, of whom I am very fond, by the way. And I didn't want him to look dumb. And I asked the Vice President to explain to me why cutting the energy budget, when we face a potential energy crisis, particularly the budget for renewables, wasn't dumb? And the Vice President asked OMB to come to my office to brief me. And they came to my office and pointed out that although they had cut a lot of R&D from the renewables budget, that they had also put, in another part of their budget, some tax credits--almost a dollar-for-dollar offset tax credits for using renewables. Does this help?

Ms. ABEND. Obviously, tax credits can be an important tool in forwarding renewable energy and energy efficiency. I think that tax credits need to be accompanied by standards and goals. For example, for renewable energy, we suggest a goal of having 20 percent renewable energy by the year 2020. Simply by, you know, having tax credits doesn't ensure that we are going to get there. We also need to have sufficient

funding for these programs for the research and development of these programs.

In terms of energy efficiency, tax credits can be dangerous if they are not accompanied with actual standards for improving energy efficiency. For example, again, with automobiles, if you have tax credits without actually improving standards for auto fuel efficiency, then you can just have, at the other end of the spectrum, the industry is able to produce more polluting vehicles. So it is important to accompany these tax credits with improved standards.

Chairman BARTLETT. I am a big fan of renewables. I am also a big fan of efficiency. I was just told this morning that California has now reduced its electric consumption by 11 percent. Efficiency and conservation does work, doesn't it, if they have reduced their consumption by 11 percent.

I also agree with you on the CAFE standards. I was the first person in Maryland and the first member of Congress to purchase a Prius hybrid electric car. We have now driven it over 16,000 miles. There is no reason that most of the cars on the road shouldn't be this technology. Our auto manufacturers in this country have them on their drawing boards. They need to be in their showrooms. This car performs as well as any other car that we have owned and it pollutes as little as 1/10 as much as competing models. And for the last more than 500 miles, we have averaged 50 miles per

gallon on the car--now, the EPA mileage. If you don't pay any attention to how you drive, you will get 45. But it has a computer screen there that kind of coaches you to do efficient things in driving. If you do that, it is not very difficult at all to get 50 miles per gallon.

I was disappointed they didn't export to us the model they built in Japan with a 1 liter engine. Ours has a liter-and-a-half engine. I guess we like muscle cars and--but I was disappointed they didn't export here the car that they market in Japan. It would have gotten about 60 miles per gallon. And I would note that safety is all very relative. There is no car on the road--there is no SUV that performs much better than the smallest car when they have a head-to-head confrontation with a tractor trailer. So it is all very relative. Isn't it? And the big SUV owner who now claims that he is safer--if all the cars were smaller, they would all have equal safety. And none of us are really all that safe if we are going to run into a big tractor trailer car.

Ms. Abend, I noted your remarks about coal and its cost in terms of illness, its cost in terms of the environment. It is not free, you know. It produces the lowest cost to electricity. And that is a very compelling argument, don't you think, as to why we shouldn't go to nuclear?

Ms. ABEND. Well, coal actually has not produced a profit

for the DOE. It has--the DOE has recouped only a small portion of taxpayers' money devoted to the program. A 1996 audit of DOE found that there was a potential loss of $133 million out of $151 million investment in six clean coal technology programs. So obviously, the money isn't really being spent in the most efficient way that we possibly could. And the point here is that we feel that the coal industry should be paying for its own research to reduce emissions.

Chairman BARTLETT. That is another question. In another round, I will ask you that question--

Ms. ABEND. Uh-huh.

Chairman BARTLETT. --because Mr. Wells is the only, I think, relatively nonbiased person on the Panel today. So I would like to ask him that--but my question to you was, doesn't your arguments about the problems of burning coal--aren't they very powerful arguments as to why we ought to use more nuclear? It doesn't have any of those negatives that you talked about with coal. You see, if we don't burn coal, we have got a big, big problem. We don't have any way near enough electricity since coal produces half of it. Every fifth home is now powered by nuclear. And the argument you made about the problems with coal, aren't they powerful arguments as to why we have got to look harder at nuclear?

Ms. ABEND. Nuclear energy is unsafe. It is expensive. And, in the past, it hasn't been successful. It has required

a huge amount of taxpayer bailouts. And so I just feel like that is--PIRG feels that that is not the solution to our energy problems. Obviously, energy efficiency is the quickest, cheapest, and cleanest way to save consumers money on energy bills to reduce pollution and also to help prevent rolling blackouts.

Chairman BARTLETT. Well, I am with you a hundred percent on conservation and efficiency. And we will get back in another round, but my time is now up. And let me turn again to Mr. Costello.

Mr. COSTELLO. Mr. Chairman, I really have no further questions. I had a couple of other questions, but they have already been asked by other members. I would just like to thank all of our witnesses for being here and to give them an opportunity, at this time, if they would like to respond to--or to add to any question that has been asked, starting with Mr. Kripowicz. Anything you want to add at this point?

Mr. KRIPOWICZ. Only one thing, Mr. Costello. And that is, that on balance--and even GAO agrees that on balance, I think that ~~the clean~~ the original clean coal program was a model effort with industry to produce clean technology. And we would hope to avoid some of the mistakes and problems that we had ~~in~~ to some extent, in the original program, whenever we go through the second clean coal technology initiative that the President has recommended. And we think we have the

knowledge to be able to do that and to work with industry to produce clean technology--cleaner and more efficient technology than is available today for the country. Thank you.

Mr. COSTELLO. Mr. Yamagata.

Mr. YAMAGATA. Thank you, Mr. Costello. Just an observation that 2 percent of the 600,000 megawatts of currently installed electrical generation in this country comes from renewable energy; 51 percent comes from coal. We would be ecstatic if 20 percent of the 3 or 400,000 of additional capacity that the President has estimated could come from renewable energy and we endorse that if that can happen. But I think we need to be realistic.

Mr. COSTELLO. Mr. Wells.

Mr. WELLS. Not often as a GAO witness I get to talk about something that is really working well and done good. But for the Clean Coal Technology Program we did commend DOE and we should commend the Congress for putting together provisions that allowed a good cost-sharing agreement. The fact that the Congress appropriated money over a longer-term period gave confidence to the business world that the government was committed to supply the funding necessary for success. The fact that DOE gave clear instructions on the roles and responsibilities, in terms of their partnership--the fact that DOE came to the table and didn't pay for everything, but

much of the industry supported greater cost shares. And once you learn that when industry puts more of their dollars in, there is a likelihood or a greater chance of success. A lot of things were done well and we think that much of that could serve for even better cost-sharing provisions in the future. So we commend DOE and the Congress for doing that sort of thing.

Mr. COSTELLO. Ms. Abend.

Ms. ABEND. I would like to just respond to Mr. Yamagata's comment on being realistic about alternative energies, because I did talk a lot about Clean Coal Technology Program being mismanaged in some ways. And I would just like to stress that in comparison to Clean Coal Technology Program, energy efficiency, the rate of return for those programs, has been staggering.

According to the American Council for an Energy-Efficient Economy, the DOE recently documented that 20 of its most successful energy efficiency projects have saved the Nation 5.5 quadrillion BTUs of energy over the past 20 years, which is worth about $30 billion in avoided energy costs. The cost to taxpayers for these activities over the past decade was $712 million, which is less than a 3 percent of the savings, and the savings are increasing every year. So just in terms of the rate of return for that program, it is pretty astounding.

Mr. COSTELLO. Mr. Mead.

Mr. MEAD. Well, certainly, I want to emphasize the energy mix that we have in this country. We need to invest in all of our resources. But coal represents the largest single source of electric energy and it is the best source for base-load power production. And we need investment in new technology to see to it that we continue to have that reliable base load for our electric economy for the coming years.

Mr. COSTELLO. I thank all of the panelists and thank you, Mr. Chairman.

Chairman BARTLETT. Thank you very much. I just wanted to make one quick observation in response to Ms. Abend's frequent references to the efficacy of efficiency. During the Carter years, we were using, each decade, as much energy--as much oil as had been used in all of previous history. Efficiency has changed that relationship so much. What that means is, of course, that when you have used half of all the oil in the world, you have only 10 years remaining if each decade you have used as much as has been used in all of previous history. We have now changed that, and it is due primarily to efficiency.

Worldwide now, we have now changed that dynamic, so that when we have used about half of all the oil in the world--and that is about now as we speak, by the way--or a few minutes ago or a few minutes in the future or years in the future or

whatever--but when we reach that point, we will have about 30 years of oil remaining in the world. And that is all due to efficiency. So, you know, I am a big supporter of efficiency. We can do--we can live just as well and just as comfortably and be a whole lot more efficient, and we have demonstrated we can do that.

And just thinking about the problem--in California, they have now reduced their use by 11 percent. That is probably mostly conservation rather than efficiency, but I don't know how you tell the difference between conservation and efficiency. You end up using less and you either are more efficient in the way you use it or you just do without and end up using less.

But we really need to focus on all of these aspects if we are going to be successful in the future. And I think that renewables are too little appreciated and too little supported, and particularly renewables from agriculture. We have an enormous opportunity to get more energy from agriculture, and I would hope that we would focus on that.

Let me ask other members of our Committee here if they have additional questions to the panelists.

Mr. SMITH. Mr. Chairman, thank you. One short question, maybe in terms to Ms. Abend. If--in the existing environment, if there was no additional tax credits, if there was no additional federal money, how much higher do you think energy

prices would have to be for the private sector to come in and build wind or solar generating--additional wind or solar-generating capacity?

Ms. ABEND. I think that wind and solar technologies--it is a matter of building these programs on a-large enough scale so that they can be cost competitive. Like I said--

Mr. SMITH. Why doesn't the--

Ms. ABEND. Like I said, wind energy actually is already--

Mr. SMITH. Why doesn't the private sector do it now?

Ms. ABEND. Well, one thing to think about is that energy efficiency--or renewable energy programs, rather, aren't receiving the same subsidies as fossil fuels and nuclear power have received historically. So there really isn't that level playing field there. Also, fossil fuel and energy--fossil fuel and nuclear energy are mature industries that are already--you know, have enough money to fund their own research. That is why the argument here is not that we don't want cleaner coal, but that--

Mr. SMITH. No. No. But still--

Ms. ABEND. --the coal industry should fund their research--

Mr. SMITH. --back to my question. Again, for the private sector to do it, then they have got to have some assurance that they can make a profit. And if they--if energy prices were doubled--and I appreciate there is a significant

variation of energy prices across the country--but if energy prices were doubled, would the private sector be billed more generating capacity through water or solar or wind?

Ms. ABEND. I don't know what the threshold point is in terms of the price of energy and increasing renewable energies, but we can't necessarily control that factor as well as we control how much funding that we provide for these renewable energy sources in order to give them that boost, and, at the very least, take away the funding from the older, more mature industries and create that more level playing field.

Mr. SMITH. Mr. Kripowicz.

Mr. KRIPOWICZ. I am sorry. I don't know what that price would be except I would--

Mr. SMITH. I guess maybe the question is, if the price of energy went up as much nationally as it has in California, as a percentage increase, where would the--where would the private sector--how would the private sector move to generate energy?

Mr. KRIPOWICZ. The private sector would still build the cheapest thing available, so they would end up still building natural gas plants and coal plants and nuclear energy--

Mr. SMITH. But here again--

Mr. KRIPOWICZ. --and then possibly, renewable, if it is more expensive. Now, wind is a category that it fits in

generically--

Mr. SMITH. Natural gas has almost tripled in the last year. I--

Mr. KRIPOWICZ. It is about doubled now. The price is about $4 compared to--it was down below $2 about a year-and-a-half ago.

Mr. SMITH. Well, I mean, that is part of the question. In terms of--and I appreciate the fact that we can subsidize some of the industries that might give them an advantage over the other sectors, but in the long run, it can't be a continuous government subsidy to generate electricity. Consumers are ultimately going to have to pay the price that motivates that kind of generation as we increase our usage and the customers are ultimately going to have to pay to assure that the environment is safeguarded in that generation. Thank you, Mr. Chairman.

Chairman BARTLETT. Thank you. Mr. Kripowicz, you have recommended a $2 billion proposed spending on clean coal technology over the next 10 years.

Mr. KRIPOWICZ. The President has. Yes, sir. ~~As of~~

Chairman BARTLETT. The President. For this year, you have asked for 150 million. You are not going to ask for all the rest of it next year. Are you?

Mr. KRIPOWICZ. ~~I~~ no, sir. We are right now in the process of constructing a 10-year program to review it with

the Administration.

Chairman BARTLETT. Could you, for the record, provide that information for us so that we, in our planning, can look ahead to--

Mr. KRIPOWICZ. Whenever we have that information, we will make it available to the Committee. Yes, sir.

Chairman BARTLETT. Thank you very much. I had said earlier that I was going to invite members of the Panel to pose questions to other members of the Panel if the members of--on the Committee here have not asked those questions. Are there comments made by other members of the Panel that need additional elucidation that pose a question from you? I would like to give you this opportunity now to pose such questions for the record or for answer here if they are short.

Ms. ABEND. I would like to ask Mr. Yamagata--you talked about improving efficiency at coal-fired power plants and carbon dioxide pollution. If that is an option, then I would like to know whether you support--whether you support legislation like S.60, which would--the Clean Air Act. Do you think that you be able to meet the standards of the Clean Air Act?

Mr. YAMAGATA. I know that the safe harbor provision that was applied in the first draft that has been introduced of S.60, which is legislation that has been introduced on the Senate side by Senators Byrd, McConnell, and, as Ms. Abend

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SUBCOMMITTEE ON ENERGY

DATE: JUNE 12, 2001

WITNESS: ROBERT S. KRIPOWICZ
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INSERT FOR THE RECORD

Clean Coal 10-Year Review

The Clean Coal Power Initiative (CCPI) is a key component of the National Energy Policy that will address advanced technology on coal-fired power plants. The CCPI represents a planned government investment of $2 billion over 10 years in a cooperative, cost-shared program with industry to demonstrate emerging technologies in coal-based power generation and to accelerate their deployment commercially. It is anticipated that the program would be implemented through a series of competitive solicitations. A review to determine the scope and content of the program will be conducted later this year. When the review is completed, the results will be provided to the Committee.

said, I believe 23 other senators. And a provision in that bill was with reference to those plants, particularly advanced coal technology plants, to have a safe harbor from provisions of the Clean Air Act. What I can say is that the concerns that have been expressed by the environmental community and others are in the process of being considered and also that provision is being redrafted. How it is being redrafted, I don't know.

But it wasn't an intent to skirt the provisions of the Clean Air Act. It was an intent to say, we may have some difficulties, as we do new technology, that is going to run up against requirements in the Clean Air Act and that we need to try and take away that uncertainty for a period of time so that someone will, or that developers will, in fact, go forward with those technologies. There was never an intent to simply place the Clean Air Act on hold for the life of those facilities.

Chairman BARTLETT. Thank you very much. I would just like to note, Ms. Abend, that not only am I a supporter of renewables, I am a user of photovoltaic and for a number of years now and very familiar with that technology and very encouraged about its future. Once made and in place, you have about 30 years absolutely trouble-free and totally pollution-free performance from photovoltaics. And I would like to see them a much bigger part of our electric

generation.

By the way, another big advantage is that they are, by definition, distributed--they are disbursed a little here and a little there so that we do away with a lot of line losses. When you have big power plants sending power for a long distance, that is a lot of line loss. Which is, by the way, the reason that Saudi Arabia was--and I suspect they may still be--the world's largest purchaser of solar cells with all of that oil. And the reason is, they have small communities widely separated and building a big power plant with all the line losses doesn't make any sense for them. So they sell the oil to us and buy from us the solar cells. It just makes a whole lot more sense for them. And that distributed production generation will pay big benefits in this country from reduced line losses also.

Let me now thank this Panel and excuse them. And Mr. Kripowicz will stay with us because he has given his opening statement for the next Panel, but he is a participant also in that next Panel. Thank you very much for your testimony.

--members of our second Panel. In addition to Mr. Kripowicz, who is staying on from our first Panel. We have Mr. Lazenby.

Unidentified SPEAKER. Ms.

Chairman BARTLETT. Ms. Oh. I am sorry. Ms. Lazenby. GiGi, the queen of the strippers, is with us today. And Mr. Cuneo,

Vice President and Chief Information Officer of Equiva Services, LLC, Houston, Texas. And he is here on behalf of the American Petroleum Institute. Dr. Craig Van Kirk, Professor of Petroleum Engineering and Head of the Department of Petroleum Engineering, Colorado School of Mines, Golden, Colorado; and Alan Huffman, Manager of Seismic Imaging Technology Center, Conoco, Incorporated, Houston, Tex. . Thank you very much for joining us. And Mr. Kripowicz has already given his testimony in the prior panel. So we will turn now to GiGi.

STATEMENT OF VIRGINIA B. LAZENBY, CHAIRMAN AND CEO, BRETAGNE, GP, NASHVILLE, TENNESSEE, ON BEHALF OF THE INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

Ms. LAZENBY. Good morning, Chairman Bartlett, members of the Subcommittee. My name is Virginia Lazenby and I am the Chairman of Bretagne, an oil and gas-producing company in Kentucky. I am pleased to be here today on behalf of the Independent Petroleum Association of America and the National Stripper Well Association. We represent 5,000 oil and natural gas producers in 35 states. IPAA and NSWA welcome the opportunity to testify on the important role we believe oil and natural gas research and development programs play in the advancement of a viable, sustainable national energy policy.

IPAA's membership constitutes both large and small independents contributing 50 to 65 percent, respectively, of domestic petroleum and natural gas production in the lower 48 states, and we employ 336,000 people. My company produces from high--from low volume, high cost stripper or marginal wells and we employ 36 employees and have a payroll of approximately $850,000 annually.

The report issued on May 17 by Vice President Cheney's Task Force on National Energy Policy Development, addressed both the Nation's short and long term energy needs. The report cites the Energy Information Administration estimate that by the year 2020, the United States will need about 50

percent more natural gas and 1/3 more oil to meet growing demand. I am sorry--to meet growing demand.

Meeting this formidable set of challenges will be complicated by events in the recent past. The damage to the industry from extremely low oil and natural gas prices in '98 and '99 is affecting supply today and will continue to do so until the industry has a chance to recover. It will take time to build new drilling rigs and provide the skilled services that are necessary to rejuvenate the industry.

Research and development, in many instances, are the last to receive support. Ironically, it is the strides made within the R&D community in recent years through programs such as those administered to the Department of Energy's Office of Fuel--of Fossil Energy that can be critical to many producers' economic survival. The current price of oil is helpful, but price alone does not save fields. Technology was and is a necessity.

Many exploration and production R&D advancements are documented in the Department of Energy's report, ''Environmental Benefits of Advanced Oil and Gas Exploration and Production Technology.'' Quoting from the report, ''In the past 3 decades, the petroleum industry has transformed itself into a high-technology industry. Ongoing advances in E&P productivity are essential if producers are to keep pace with steadily growing demands for oil and gas. Progressively

cleaner, less intrusive, and more efficient technology will be instrumental in enhancing environmental protection in the future.''

According to the National Energy Report, anywhere from 30 to 70 percent of the oil and 10 to 20 percent of natural gas is not recovered in initial field development. Enhanced oil recovery projects could add about 60 billion barrels of oil nationwide through the use of existing fields.

My company has utilized nitrogen huff-and-puff process to increase production from a mature Appalachian oil field and we have increased production from 100 barrels of oil per day to 500 barrels of oil per day. And, Mr. Chairman, we have recovered, in our project, 240,000 barrels from this field and we expect to get an additional million--a total of 1,700,000 barrels. That is 4.5 percent of the oil in place.

Bretagne developed and owns the patent on this process, but we need more refinements in technology to keep costs down. And to that end, Bretagne has partnered with Penn State, through the Stripper Well Consortium, in the development of a chamber lift technology to produce stripper--to--for producing stripper wells that requires no expensive pump jack and significantly less electricity, which goes to the point of conservation that you discussed earlier. The Stripper Well Consortium is an industry-driven organization that receives base funding and guidance from the

Department of Energy's Office of Fuel--of Fossil Energy--excuse me--and the New York State Energy Research and Development Authority. By pooling financial and human resources, the Stripper Well Consortium can economically develop technologies that would extend the life and production of the Nation's stripper wells.

Programs such as the Petroleum Technology Transfer Council, a joint public-private partnership between the entire independent producing community and the Department of Energy, and the Stripper Well Consortium, provide badly needed research and development capital.

For the foreseeable future, the Nation will be dependent on fossil fuels. Petroleum and natural gas currently account for approximately 65 percent of the Nation's energy supply and will continue to be the significant energy source. The development of any domestic energy policy must recognize this reality. Oil and natural gas research and development holds the key to the maximum utilization of the Nation's energy resource base in a manner that represents as few environmental consequences as possible. Technology can help us get there and the public-private projects sponsored by the industry and the Department of Energy are an excellent way to encourage the development of the technology our Nation needs to develop a viable, sustainable energy future. Thank you.

[Statement of Ms. Lazenby follows:]

1946 ********** INSERT 8 **********

Chairman BARTLETT. Thank you very much. Mr. Cuneo.

STATEMENT OF PAUL CUNEO, VICE PRESIDENT AND CHIEF INFORMATION OFFICER, EQUIVA SERVICES, LLC, HOUSTON, TEXAS, ON BEHALF OF THE AMERICAN PETROLEUM INSTITUTE

Mr. CUNEO. Mr. Chairman, thank you for inviting me to testify today on the remarkable technological developments that have been made over the past several years in the downstream sector of the petroleum industry. I am testifying today on behalf of the American Petroleum Institute, a national trade association whose members are engaged in all aspects of the petroleum industry, including exploration, production, refining, distribution, and marketing.

Americans depend on our industry to keep the U.S. economy moving as never before. In our expanding economy, we provide hundreds of products made from petroleum in volumes that would not be possible if we were not for developing new technologies that have made our industry more productive, more efficient, and more economically viable.

Mr. Chairman, I would like to focus on three areas of technology advancements with my testimony today. First in the area of refineries, then pipelines, and then in fuel for vehicles of the future.

In the areas of refining, as you know, demand for gasoline this year is at record levels. To meet it, refineries have been running all out, around 97 percent of capacity. Just a few years ago, this feat would have been

difficult, if not impossible, but development of new computerized process control and online optimization technologies make it possible for refineries to run harder and make more products than at any other time in our history while improving safety and environmental performance.

In 1981, just 2 decades ago, there were 315 refineries in the United States. Today, that number is 155. Two decades ago, we produced 6.4 million barrels a day of gasoline and today we are producing 8.5 million barrels a day of gasoline to meet the American public's demand. And we continue to produce additional products, such as jet fuel, heating oil, diesel fuel, and other much-needed products which fuel not only our transportation sector, but our chemical industry as well.

The industry has had to invent new refining processes to meet current and future product specifications and to meet environmental regulations. One example of that is the industry has developed successfully a catalytic distillation process to commercialize and produce MTBE. And you also use this technology in order to reduce sulfur in gasoline to make the future low-sulfur gasoline required by environmental regulations. Another example are flue-gas scrubbing processes which have been applied to catalytic cracking units that reduce SOx and particulate emissions while enabling our existing plants to process a wider variety of feed stocks.

Petroleum refining is one of the most energy-intensive of our manufacturing processes in America. And, yet, today, many refineries are running and have seen their own energy consumption drop by 30 percent. Still, there is more opportunity and more activities to be undertaken to reduce energy consumption in the refining sector, and greenhouse gas emissions as well.

One goal in improving technology is to take advantage of the byproducts produced in the refining processes and ensure that they are fully upgraded and converted through our modern clean-burning gasoline and diesel fuels. The refining industry has been a real example of using byproducts from refineries to produce excess steam and hydrogen and even energy--in many cases, electrical energy.

Those of us in the refining industry take pride in a holistic approach to the future. And by that, I mean we consider the environmental benefits side by side with decisions on increasing capacity and improving efficiencies.

New technologies have been developed to monitor so-called fugitive emissions from refinery valves, pumps, compressors, and other critical areas. A refinery worker will soon be able to walk around with a portable device based on an infrared laser and an imaging system to pinpoint unwanted hydrocarbon emissions and correct the leaks.

Information technology is enabling refiners to develop

online sensors to analyze the chemical makeup of crude oil as it arrives at the refinery, making it possible to turn it into various products faster and more efficiently with reduced emissions.

In recent years, there have been dramatic advances in the use of catalysts. Catalysts today are converting materials into low sulfur gasoline and diesel components from poor quality crude in ways that have never been done in the past.

We are also refining used lubricating oil needed for today's vehicles and for many other applications in today's industrial economy. Today's modern lubricants contain synthetic components that reduce vehicle gasoline consumption and do an even better job of reducing engine wear, ~~the~~ 4/a., naturally occurring components. We have developed better processes to take out solvents that sharply reduce the amount of heat used in the lubricant manufacturing process.

Mr. Chairman, our industry is pleased to see the President's National Energy Plan include proposals designed to overcome regulatory obstacles that often make it difficult for the refining industry to install new equipment that incorporates the type of technological advances we are discussing here today.

In the arena of pipelines, computers have also transformed the pipelines that carry gasoline and other fuels from refineries to distribution points all over the country.

Instantaneous communications along hundreds of miles of pipeline keep a variety of fuels flowing smoothly and permit an instant shutdown should a break in the line occur. The reaction is so ~~fast~~ fast that little liquid escapes before the flow is stopped. Information travels by satellite, microwave, and fiber optic wiring to centralized control centers.

Smart pigs, computerized sensors that look like giant rubber bullets, travel through pipelines to detect thinning caused by corrosion and construction gouges that could, in turn, eventually mean a broken line. The most advanced kind of smart pigs contain ultrasonic sensors that identify the tiniest of cracks, dents, and gouges on the interior of the pipeline. Some of these devices can even change size permitting them to move through different-sized pipelines and past gate valves.

When we look to the future for fuels and advanced vehicle technologies, we believe that ultimately one of the most significant parts of this story will be a new chapter on fuel cells. No one is certain what the fuels and cars of the future are going to look like, but a pattern is emerging. Our children and grandchildren will be driving vehicles that are safer, cleaner, and more efficient than any in history. In the next 5 to 15 years, they will probably be powered by an internal combustion engine that is much cleaner and more efficient today, and long term by fuel cells. Either

propulsion system will use an advanced, ultra-clean gasoline provided by the U.S. refining industry.

Mr. Chairman, what I have offered here today has been a taste of the many fast-moving technological developments in our industry. There are two thoughts that I would like to leave with you. First, new technologies will continue to allow our industry to be more productive and efficient, while at the same time improving our environmental performance. And, second, that industry and government should cooperate in research in these areas. Thank you for inviting me here today.

[Statement of Mr. Cuneo follows:]

********** INSERT 9 **********

Chairman BARTLETT. Thank you very much. Mr. Van Kirk.

STATEMENT OF DR. CRAIG W. VAN KIRK, PROFESSOR OF PETROLEUM ENGINEERING AND HEAD OF DEPARTMENT OF PETROLEUM ENGINEERING, COLORADO SCHOOL OF MINES, GOLDEN, COLORADO

Mr. VAN KIRK. Is that about the right distance for the microphone? Thank you very much for the invitation to come here today to be of some assistance. My name is Craig Van Kirk. I am a Professor and Head of the Petroleum Engineering Department at the Colorado School of Mines and have been for 21 years.

Just last week, Monday and Tuesday, I was in Houston for a first-of-a-kind, invitation-only meeting of international, American oil companies and American universities and international universities also and a representative of the Department of Energy. And we met for 2 days to discuss today's and near-term and long-term research needs of the oil industry, upstream, exploration and production. The oil companies and the service companies shared their needs with us representing the universities and we shared our needs and our capabilities and our areas of interest and expertise with them. As I say, this was the first time a meeting called for this particular kind of venue and we had an excellent conversation and plan to meet again in October to further these discussions and have some more concrete plans.

Imagine our abilities in the petroleum industry and petroleum engineering, in particular. We can drill seven

miles into the earth. We can drill in one to two miles deep oceans around the earth. We produce products for the benefit of society and have for many, many decades, all over the world. And not just energy. I appreciate that the major concern of today's discussions are energy, but petroleum and crude oil and natural gas production go into the manufacture of many things in this room--the paints, the--probably the curtains, the carpet, the plastic cups, the containers for the water we are drinking. These things are made from the production of petroleum. Sometimes people ask if we are going to run out of petroleum soon or stop producing soon. No. The world will need plastics and materials made from petroleum for hundreds of years. We will continue to produce for hundreds of years for those reasons.

Now, some people think that the petroleum industry is not very high-tech because all they see are big pieces of equipment--offshore drilling platforms or drilling rigs or pumping units. Well, as a matter of fact, the high-tech level of development in the petroleum industry and application is extremely high. And I have included some examples in the written testimony that I submitted to you earlier, and I will just repeat a few right now.

For example, in the area of seismic investigations into the earth's surface, we can see down several miles into the earth and we can create three-dimensional images of what the

earth's subsurface looks like. And this helps us find new resources of oil and gas, new reservoirs. And when we do the 3-D seismic, three-dimensional seismic, over a period of time, we get a time-lapse photograph, if you like, to see where fluids are moving. We call this 4-D, the fourth dimension being time. So we can watch fluids moving around underground, whether it be a shallow movement or a great depth, a mile or two or three miles deep. We can watch fluids move and we can distinguish between types of fluids. This 4-D visualization is a major new endeavor.

Also, horizontal drilling. We can drill directionally from one surface location seven miles laterally, seven miles in another direction. So we can cover an area of 14 miles from one location. Now, this is not routine and we don't do this every day. But directional drilling, to drill several thousand feet or several miles in different directions, to exploit a very large reservoir from a very small footprint, this is a new development that continues to improve with our research.

Now, the fact is that oil and gas do not exist underground in big open pools or rooms like this room. They exist in the pores, small pores of rocks. But at several thousand psi, fluids can flow quite well. Now, based on our technical developments and research and experience through the years--is that a buzzer I need to be concerned about? And

even with--is this daily?

Chairman BARTLETT. Excuse me. The buzzer going off is simply informing you that we aren't doing anything on the Floor.

Mr. VAN KIRK. Will the lights go out if there is no signs of intelligent life in here? Is that an automatic switch? We have been producing oil for more than 100 years and unfortunately we can recover today only approximately 1/3 on average, and we have 2/3 of oil left in the ground. Enhanced oil recovery, cooperative efforts with industry, universities, and the government, have been essential to us in the past and continue to be essential to us in the future.

And, in fact, I would say, based on my experience and working with industry for all these years and government representatives, that the support for oil and gas exploration and production research should be increased, not decreased at this time. I thank you very much for the opportunity to serve you today, and I will be happy to answer any questions.

[Statement of Mr. Van Kirk follows:]

********** INSERT 10 **********

2182 Chairman BARTLETT. Thank you very much. Mr. Huffman.

STATEMENT OF ALAN R. HUFFMAN, MANAGER, SEISMIC IMAGING TECHNOLOGY CENTER, CONOCO, INC., HOUSTON, TEXAS

Mr. HUFFMAN. Thank you, Mr. Chairman, and good morning to you and the members of the Committee. I would like to thank you for the opportunity to testify today as a concerned technology leader in the petroleum industry. The United States faces a significant challenge over the next 10 years in the area of safe and environmentally sustainable energy development. The recent power problems in California and other parts of the United States, along with the simultaneous critical supply and infrastructure problems in the electricity, gas, and oil markets, indicate that the Nation is entering a period of sustained energy challenges that could cause serious damage to the national and global economies if significant steps are not taken soon to address the problem.

During the 1960s, the United States demonstrated the vision, courage, and commitment that was required to put a man on the moon. This effort took significant resources and a coordinated effort from all of the stakeholders in space exploration to assure success. As we enter the new millennium, our Nation faces an energy challenge that is much greater than space in the level of technology that is required for success. It is my belief that this crisis requires a technology effort of similar scope and scale to

what America committed to winning the space race.

During the next few minutes, I would like to enroll you in a new vision for a national technology program that will allow government to work closely and collaboratively with industry and academia to help solve our national energy crisis. This program will focus on the development, deployment, and commercialization of innovative technologies that will increase domestic energy supplies, reduce domestic energy costs to the consumers, and will be revenue positive to the Federal Government.

I propose that the Congress, as part of the National Energy Plan, authorize the creation and funding of a national energy technology effort which, for illustrative purposes, I have called the United States Energy Center, or USEC. USEC will act as the catalyst for the next generation of innovative energy solutions that are required to achieve a secure energy future for the United States. The Center will be the focal point for industry collaboration with government and academia and will bridge the gap between research and development of new technologies and the commercial world by focusing on the development, first field deployment, and commercialization of major energy technologies.

USEC should be established using a model similar to the Joint Oceanographic Institutions, which manages the ocean drilling program. The Center should be overseen by an

expanded interagency working group that includes representatives from the key agencies with an interest in safe and environmentally sustainable energy supplies, including the DOE, Minerals Management Service, NSF, the United States Geological Survey, NOAA, NASA, EPA, the Naval Research Lab, and the Coast Guard. The oversight mechanism should be through an Advisory Board consisting of the Federal stakeholders and the Center corporate, and academic and NGO members.

The Center should be closely aligned with the DOE Gas and Oil Technology Partnership Program at the National Labs to assure maximum leveraging and transfer of technology from DOE to USEC programs. Close coordination with other federal science programs should also be encouraged to achieve economies of scope and scale where possible. Center programs should provide timely information to regulatory agencies, including the MMS and EPA so that new regulations can be developed using the latest technical information and input from all stakeholders.

The first major program undertaken by USEC should be a technology effort called the Offshore Technology Program. In contrast to many petroleum regions of the United States, the deep water and ultra-deep water Gulf of Mexico hold very large reserves of oil and gas that should be included as a critical component of a future comprehensive U.S. energy

strategy. One way to stem the decline in U.S. oil and gas production is to begin a massive development of the reserves contained in the deep water environment. This development would produce an increase in domestic production similar to when the North Slope of Alaska was brought on line in the 1970s and '80s.

One of the great challenges facing the industry is how to execute such an aggressive deep water development campaign when many of the technologies required for the effort are still in their infancy. The scale of operations in deep water is so massive that no single operator can afford to spend the money required and take the risks involved without support and risk sharing from other stakeholders in deep water. Individual technology development and field trial costs for some of the technologies can exceed $100 million, which is clearly out of the reach of even the largest operators. This type of massive development challenge lends itself very well to a cooperative effort by government and industry.

The Office of Natural Gas and Petroleum Technology of DOE has been working with industry and academia to formulate a technology strategy to accelerate deep water development in the Gulf of Mexico. This strategy, called the Offshore Technology Roadmap, or OSTR, was assembled through a closely coordinated partnership with the DOE labs, the MMS, the operating, service, and engineering companies, and academia.

The ~~OPT~~ OTP implements the OSTR by lowering critical technology barriers, enabling deep water developments to proceed at a faster pace, and allowing development of many smaller fields in deep water that are not commercial today.

The potential of this program is very significant and could provide several million barrels per day of incremental production in future years. OTP's key components would include a high-intensity design competition for the next generation of ultra deep water facilities that will allow dramatic cost reductions in deep water operations, component technology programs for those technologies that will allow major cost reductions in specific operational areas and development programs that will integrate the expertise of the industry, academia, and the U.S. National Labs.

I recommend that the Congress appropriate a minimum of $25 million in funding for 2002 to support the Center operations and first year of the OTP. With industry-matching funds of 25 million, this would result in full funding of $50 million for the first year of the program. Preliminary economic models indicate that a properly funded and managed OTP effort will be revenue positive to the Federal Government with approximately 3.5 billion in new revenue generated in the first 10 years of the effort.

These budget amounts should be put in perspective with the energy needs of the United States. The initial 25 million

in 2002 federal funding for the Center and OTP would be equivalent to purchasing one million barrels of crude oil for the strategic petroleum reserve at $25 a barrel. This is equal, as was mentioned earlier, to about one hour of oil consumption in the United States. If the program is successful, the increase in deep water production after a few years, would provide this same benefit in 1 day at significantly reduced cost to the consumer.

The U.S. Energy Center has been structured to be a win-win for all parties that will address the Nation's energy needs while reducing energy costs and generating incremental revenue for the taxpayers through the rapid deployment of new technologies. All of the details of the Center and OTP concepts, structure, and funding requirements are described in the USEC business overview that was provided to you along with my written testimony. Work is currently underway to enroll the entire energy industry in the USEC vision, and we will keep you informed as this support grows.

I encourage the Committee to vigorously support this exciting new concept as part of the comprehensive national energy strategy. Thank you for you attention, and I would be happy to answer any questions.

[Statement of Mr. Huffman follows:]

********** INSERT 11 **********

[The information follows:]

********** INSERT 11A **********

Chairman BARTLETT. Thank you very much. I want to thank all of the witnesses for their testimony. And let me turn now to Mr. Costello for his questions and comments.

Mr. COSTELLO. Mr. Chairman, thank you. Mr. Huffman, let me follow up on your testimony. Did I hear you correct that you are recommending 25 million the first year?

Mr. HUFFMAN. The minimum requirement that I propose in the testimony is 25 million. Ultimately, as I said in the statement, this will require significantly larger amounts of money, not as much as the Space Program cost, but significant amounts of money that would have to be matched by industry and government working together to solve the problems that we face in deep water on the technology side of our business.

Mr. COSTELLO. And five is for the Center and 20 is for the program. Is that correct?

Mr. HUFFMAN. That would be for the first year. Yes.

Mr. COSTELLO. And how do you see, looking down the road, 10 years--a 10-year plan? How much would you expect the Congress to appropriate over a 10-year period?

Mr. HUFFMAN. If you look in the last page of the summary, the business overview that I have provided to you, there is actually a graph. The assumption in that economic model is that the program would ramp up to $250 million a year of federal funding in the 4th year and then would stay stable at that level through the 10-year first phase of the program.

And there are obviously different models that you can run, but that model is revenue-positive to the Federal Government over the lifetime of the program, including the tax credits that would be taken for R&D, the revenues from royalties, and not including the trickle-down effects from the income taxes and other industrial impacts of a large program like this.

Mr. COSTELLO. Let me ask you to direct your attention to the deep water Gulf of Mexico. I know that little work has been done there. But, one, what do we know about the potential for oil and gas production from the deep water in the Gulf at this time?

Mr. HUFFMAN. Based on the numbers that we have from our current exploration and production in the Gulf, it is probably one of the most prolific remaining frontiers within the United States for future production of oil and gas. There are, to my knowledge, no other areas that are currently being explored and developed that contain the scale of potential that the deep water contains.

Mr. COSTELLO. And what might that scale of potential be? Do we have any idea?

Mr. HUFFMAN. In terms of production, it could be several million barrels a day of additional production over a 10 or 20-year lifetime. So a fairly significant total reserve base exists out there yet to be developed.

Mr. COSTELLO. And what is that potential reserve

base--how did we determine that? What is that based upon?

Mr. HUFFMAN. That is based on the industry projections. And I can get you some detailed information on that later if you would like to see some more actual numbers. I didn't bring those with me today.

Mr. COSTELLO. Dr. Van Kirk, you mentioned in your testimony about the technology advances in the '60s and '70s, and that today's supplies of oil and natural gas would not be here today had it not been for the development of those technologies. And I just wonder how much of those technology advances were attributed to government oil and gas research versus the private sector?

Mr. VAN KIRK. I cannot quantify the distribution, whether it be 50 percent--I can't do that and I don't think anybody can, but it has been significant. Department of Energy participation with us in our researches on university campuses and with private industry almost always are partnerships among three or four of our groups--government, industry, and universities, and academia. And the funding is shared also. Usually, there is a requirement for cost sharing on the university's part and with private industry. Government's participation and contributing some funding is--has been essential and crucial and useful. And also the government participation guarantees distribution of the results on a broad basis to everyone in the country.

Mr. COSTELLO. I wonder if--and I realize you have--you said you cannot give a definitive answer. But did you have--is it 50/50, more than 50/50? Or, Mr. Kripowicz, would you know, during that period of time?

Mr. KRIPOWICZ. I would agree with Mr. Van Kirk. It would be very difficult to align the percentages. Industry, in general, spends ~~a--you know, if~~ what they count as R&D, a considerable amount more than the government does, but the government focuses on high-risk areas. And so, over time, the government research has more bang for the dollar than you would think because it looks at high-risk things that the industry might not look at immediately, and the industry picks it up and spends a great deal more money bringing that technology to market.

Mr. VAN KIRK. Mr. Costello, may I--

Mr. COSTELLO. Please.

Mr. VAN KIRK. --proceed? Thank you. I hadn't thought of it this way before, but it occurs to me that if you are asking for a distribution, and we cannot quantify it, I think it is similar to considering an athletic team, a team sport, where the team is successful, and then to try to distribute the success among the team players. You can't do it just by how many points are scored or how much money somebody put in.

Mr. COSTELLO. I wish I could explain that to my constituents back home. They don't look at it that way. But

let me ask a question about the oil companies--and it is my understanding that their R&D commitment has been reduced in the past few years. And I wonder if I might ask anyone who would like to answer the question why that has been. I am sure there are several obvious reasons, but I wonder if you would begin, Dr. Van Kirk.

Mr. VAN KIRK. Well, I am speaking on my perspective from the university standpoint and my close association with professionals in industry also--our professional societies and meetings and conferences. Over the past 15 years, there has been quite a consolidation in our industry. Depressed prices, 10, 15 years ago, consolidations, mergers, and the oil industry reducing its own internal research and development activities and evolving and migrating into a newer relationship with universities and the government and the DOE doing research and service companies also--major oil field service companies, doing joint-team research. So there has been an evolution in recent years. And, as a matter of fact, last week in our meeting in Houston, we talked about continuing that evolution even further.

Mr. COSTELLO. Mr. Huffman.

Mr. HUFFMAN. Well, that is the job that I do inside my company, is running a technology organization. And, yes, you are correct in the general statement that over the last, say, 10 to 15 years, the total amount of money spent by industry

has dropped significantly. That has been partly, as Dr. Van Kirk said, to the long period of low energy prices and the resulting low return on capital that the industry was able to achieve in that environment.

The second thing that has occurred is the consolidations, as Dr. Van Kirk mentioned. And if you look at the industry research laboratories, some of the finest labs in the industry are now gone. Two of them, Amoco and Arco's research labs, for example. And those were legendary laboratories. And it is unfortunate that we have seen that happen, but that is what happens when you do consolidate. The R&D spending in the last year or so, as prices have gone up, has actually begun to increase again. But, as you can imagine, after 15 years of poor returns, the industry is hesitant to rapidly begin investing large amounts of money until we are sure that the return on capital employed is going to be sufficiently high enough to warrant those R&D expenditures.

The other issue, and in particular to what I spoke of in deep water, is the risk issue. And I think this is one of the reasons that the deep water is an attractive area for us in getting government support and co-funding with industry, is that is a very risky environment.

Now, some of you may recall the recent incident in Brazil, where the P-36 semi-submersible rig, at Roncador Field sank in the south Atlantic. That incident was of

sufficient magnitude in cost that it would break a smaller oil company than Petrobras. The total cost of that incident will be somewhere between a half a billion to a billion dollars against Petrobras' bottom line.

So we have to balance both the risk of our research, but I believe we are increasing the spending in the industry right now. I know our company is. We have seen significant increases in R&D expenditures in the last 2 years. So that is a positive trend that we are starting to see.

Mr. COSTELLO. Thank you. Mr. Cuneo, I wonder if you were setting the priorities for fossil--the Fossil Energy Program at DOE what your priorities would be.

Mr. CUNEO. When we look at the downstream business, we would say that the first priority is on pre-competitive technologies. We are working with DOE in the area of industries of the future to try and get some pre-competitive work done in a number of areas. Those would include behavior of materials, novel approaches for removing contaminants from crude oil, such as metals, sulfur, nitrogen. Our basic position is that we would like to see DOE very actively involved with the pre-competitive work and then we believe that industry funding is adequate to take that to commercialization.

When we look at this whole question, we also go beyond DOE. I was President of the Coordinating Research Council,

which is joint between the auto and the oils, and we find needs within EPA to step up funding for environmental models, such as air shed modeling and things like that. In the past few years, our joint consortium has funded some very basic research that, in my mind, was done mostly by universities, but would have been appropriate to have the public fund. Such as the behavior of aromatic components in the atmosphere, behavior of alkenes, behavior of alkanes. And we do a lot of work to validate models as they come out. And I would think that that ought to be a priority for EPA as they think about their funding to step up what they do to contribute to this broad area for society.

Mr. COSTELLO. A final question and then a comment, I guess, for the panelists, other than Mr. Kripowicz. The President has been criticized in his Administration for his energy proposal, that it is too heavy on oil and not enough in the area of alternative fuels. And I wonder if the four of you might want to comment. If you agree with the criticism that the Administration has received, that it is too heavy on oil and not looking at alternative fuels. Whoever would like to take a stab at that.

Mr. CUNEO. I would like to take a quick stab at part of that. I think in a lot of areas what that criticism ignores is the economic realities. The fact of life is that the American public wants to pay a relatively low price for

energy. And when we look at some of the alternative technologies--and I was enjoying the discussion about--that we had in the previous Panel around solar investment. When solar becomes the most economic choice for the investor to put their money to get a return, that is when we will see a lot more wind power. Until that time, what you will see is using available, relatively clean fuels, like natural gas. And so I think there is a lot of technology already developed in the alternative fuel area, but in general, most of the alternative fuels require public subsidy to get them commercial. And in many cases, that can go on for decades.

Mr. COSTELLO. Ms. Lazenby, any other comments?

Ms. LAZENBY. I would just like to say that I think that in the realm of enhanced oil recovery that the Administration has made a strong point that we should increase that. And I think that is a--that the footprint for that energy is already there and the technology that the Department of Energy can help us with would be very beneficial. And I think the Administration recognizes that we need additional fossil fuel energy and that we also need to focus on renewables. But I don't think he has overemphasized it in any way. It is going to be there. It is a large part of our energy base. And to ignore it, and to ignore how we can improve it, both in an environmental way, is--would be the wrong thing to do. So I think he is doing the right thing and I think working on

renewables is--should be--also be funded, but we can't ignore the facts.

Mr. COSTELLO. Any--Mr. Huffman.

Mr. HUFFMAN. Well, I guess I would add to that that the challenge that we face right now is that we have under-invested in our energy infrastructure and supply for most of the last 20 years. And part of that is because energy prices have been cheap. There has been less incentive. And we must find a balance that includes oil and gas, coal, all forms of electrical generation, including alternative fuels. And we must grow our energy base in all of those areas, keeping the proper balance with the environmental concerns, to supply the energy that the Nation needs. And that is not going to be a trivial exercise and it is going to require a national effort and all the stakeholders in energy are going to have to work together to achieve that. And that is something that has always been a challenge, but I think we have to overcome that challenge if we want to have a stable economy and society in the future.

Mr. VAN KIRK. I agree. And, furthermore, just speaking of enhanced oil recovery, many, many years ago, we started injecting fluids into reservoirs to increase recovery--water, gases, steam, chemicals, thick vicious polymers, to increase oil recovery. And one of the newer techniques that has been researched and developed and proven in recent years is CO2

injection--carbon dioxide injection for enhanced oil recovery.

Ms. LAZENBY. We are doing that right now.

Mr. VAN KIRK. And we would love to have more CO2 to put into the ground underground for improving the recovery and perhaps sequestering the CO2 underground.

Mr. COSTELLO. Mr. Chairman, I thank you and I thank our witnesses. For the record, I would like to state that our colleague on this Subcommittee, Congresswoman Sheila Jackson Lee, wanted to be here today. She is a member of this Subcommittee, but as most of you probably know, about half of her district is under water. So she is at home trying to help her constituents. But she did call and wanted us to let you know that she is sorry that she could not be with us today. Mr. Chairman, thank you.

Chairman BARTLETT. Thank you very much. Ms. Lazenby, you mentioned that enhanced recovery could produce 60 billion barrels more oil. Was that just in this country?

Ms. LAZENBY. Yes. There--yes. There are about 350 billion barrels of oil in place that have not been recovered from existing wells. And you--the 60 billion is the percentage that we think is attainable within--with enhanced oil recovery techniques that are either in place now or could be developed with additional research and development. And it has been proven--I think we just heard this morning about a

project in California, and I have just told about mine--we can do it. And it is out of existing wells. And, for example, we are putting CO2 in addition to nitrogen into our wells now and we have already gotten good response from CO2 and nitrogen in our wells. So that is one place to put the nitrogen--I mean, the CO2 also.

So there are a lot of positive benefits to taking the resource base that exist in existing wells that have already been drilled, that are already there, that are now producing approximately--both oil and gas, approximately 1/3 of our oil and oil equivalent needs in this country. And with just a little bit of extra R&D we can really keep the--keep a good source of energy coming.

Chairman BARTLETT. These are big numbers and it is useful to put them in perspective so that you can get some idea of what they mean. In terms of oil consumption, at present use rates, and we ought to preface every statement relative to use at present use rates, because use rates are going up and--but at present use rates, that is about a 2 years' supply for this country. And so that is a meaningful amount of oil.

Mr. VAN KIRK. Mr. Chairman--

Chairman BARTLETT. Some of you mentioned the petrochemical industry. Mr. Cuneo, you mentioned that, and, Dr. Van Kirk, you mentioned that also.

Mr. VAN KIRK. I think you might have misquoted some numbers. If you are talking about 60 billion.

Chairman BARTLETT. Yeah. That is about a 2 years' supply.

Mr. VAN KIRK. No. We consume about 2 billion in crude oil per year--or we produce about 2 billion barrels per year--we produce. We consume--

Chairman BARTLETT. Oh. I am talking about our consumption.

Mr. VAN KIRK. We consume--

Chairman BARTLETT. We consume about 20 million barrels a day; the world about 80. If you multiply that by roughly 400 days in a year, you are somewhere in the neighborhood of 30 billion barrels a year and 60 billion--

Ms. LAZENBY. He means for the country.

Chairman BARTLETT. Oh. Okay. You are right. But that is world supply.

Ms. LAZENBY. World supply. Right.

Chairman BARTLETT. Yeah. We are a fourth--that is 8 years for us and--

Mr. VAN KIRK. Right.

Chairman BARTLETT. Thank you for correcting.

Mr. VAN KIRK. You are welcome.

Chairman BARTLETT. That is 8 years for us and 2 years for the world. Thank you.

Mr. VAN KIRK. You are welcome.

Chairman BARTLETT. Okay. Thank you. Thank you. Two of you mentioned petrochemical industry. I think there is too little appreciation of how important oil and natural gas are in this petrochemical industry, which is very large, as you have pointed out. We live in a plastic world. Our clothes, our automobiles, much of our automobiles, the television in front of you there, the plastic cups here, the containers for the water, the laminate on top of the desk here--these are all made from oil. What will we do when natural gas and oil are in really short supply, essentially gone? Could we make these things from agricultural products? Mr. Cuneo.

Mr. CUNEO. I would like to respond that, Mr. Chairman. There is technology today to make all of the products from what we call syn-gas, which is a mixture of carbon monoxide and hydrogen. Syn-gas can be made from coal. And, in fact, coal gasification does that before it converts it to electrical generation. That technology of being able to make these building blocks is commercial today. We have been producing detergents from syn-gas for years. We have been producing other components from syn-gas. So what we really need is--it is more expensive, obviously, in terms of total capital and operating costs to do it that way versus using the building blocks which occur in petroleum. But the technology is available today to continue to produce our chemical building blocks through the syn-gas and

Fisher-Tropsh type technology.

Chairman BARTLETT. Another byproduct--another product made from this is nitrogen fertilizer. Today, essentially all of the nitrogen fertilizer is made from natural gas. Before we learn how to mimic what nature does in a summer thunderstorm, we got our nitrogen fertilizer from the barnyard or from guano, from bat caves and islands where birds have nested for thousands of years. So the food we eat is, in a very real sense, petroleum and gas that powered the farm machinery that produced it and produced the nitrogen fertilizer. And, by the way, without nitrogen fertilizer, productivity of food and fiber would be drastically, drastically reduced. In a very real sense, natural gas, particularly, and oil, secondarily, aren't they really too good to burn?

Mr. CUNEO. In many ways that is true. On the other hand, there is nothing that provides the economic transportation fuel for the country with the mobility that people want, especially in vehicle systems, than petroleum. It is the most cost-effective out there today. And when you look at the overall theme that I think this Panel and the previous Panel had, this country needs a good mix of energy sources, including things like coal for stationary power generation. We have a large installed capital base in the power plant. But just imagine trying to translate that to petroleum fuels

or fuels to fuel a vehicle. It is--

Chairman BARTLETT. Let me ask the Panel a question. Is there general agreement--we had a hearing several weeks ago on the available fossil fuel resources in the world. And there was general consensus that there is about a thousand giga-barrels of oil remaining in the world. That maybe if you are wildly optimistic about recovery that you might get almost that much more by recovery. But that thousand giga-barrels is not forever. That translates to roughly 30 years of use at present use rates. And if you factor in increased use rates, maybe that which we will find, maybe the enhanced recovery will give us enough to make up for the increased use rates.

The point I am trying to make is that we should--and I am trying to think of an analogy that really explains it. It is true that these fossil fuels are very cheap today. But those that are of high quality, gas, particularly, and oil, there is roughly 30 years remaining in the world. Just because they are cheap today, does that mean we should use them all today and let our kids and our grandkids worry about tomorrow? Certainly, they are cheap. But this is a finite resource that we need to husband and I don't see us addressing that consideration hardly at all in our energy policy.

A better way of looking at the energy policy is that it is a giant hide-and-go-seek game. That God knew how

profligate we would be in the use of fossil fuels, so he hid a very large amount out there and our only challenge is to go find where he hid it. I think that a rational national energy policy needs to reflect the fact that these high-quality, readily available, cheap fossil fuels are not going to be there forever and we need to consider that in our national policy. Do you agree?

Mr. VAN KIRK. Certainly, it has to be--certainly, it has to be considered and forecasts have to be made naturally. And, certainly, we don't want to leave our children and grandchildren to suffer because of what we have done and wasted. Excuse me. But as was mentioned a few minutes ago, hydrocarbons--we humans have a lot of hydrocarbons in our bodies. Coal, oil, gas, trees, plants, animals--it is a very common substance on earth. And scientifically, we can make--we can convert one to the other and back and forth in the laboratory and in the field. Most of these transformations are not profitable and they are not useful. But some time in the future it may be that the price of a particular resource might be such that competition from other possibilities becomes profitable and reasonable and takes over. I see oil and gas being produced for another few hundred years, but not to fuel transportation. Something else will fuel transportation and we will enjoy oil and gas to make medicines and plastics, artificial things, synthetic

things, as we have talked about earlier today.

Chairman BARTLETT. But at the rate of their consumption today, we need to have a policy which husbands them or they won't be available for the next 2 or 300 years as a feed stock for the industries that mentioned.

Mr. VAN KIRK. I think the policy needs to be balance and forecasting realistic futures.

Chairman BARTLETT. How good a job are we doing at using byproducts? The better we do of using byproducts, the lower the cost of the ultimate fuel will be and the kinder we will be to our environment. Do we have an aggressive program to develop uses for these byproducts?

Mr. HUFFMAN. I guess I will try and speak to that, Mr. Chairman. Our company, for example, has developed a carbon fiber technology that uses what we call the bottom of the barrel, the pitch that comes out of the refining process. And many other companies are pursing similar technologies that will use the parts of the barrel of oil that in the past have considered debris or waste. We are seeing, as was mentioned earlier, gas-to-liquids technology, which allows us to actually separate in the Fisher-Tropsh process some of the impurities and byproducts and separate them into quantities that can be sold and delivered to markets.

So we are seeing the industry move in the direction of modifying the hydrocarbon molecule and utilizing all the

parts of that molecule as efficiently as possible. And I think we will continue to see that trend in the next 20 or 30 years, hopefully to the point where we are not burning gasoline in cars anymore and we are seeing other types of fuels that are by products of the hydrocarbon molecule. And we are using the carbon for certain things, such as carbon fibers, and composite materials. And I think that would be a very wise use in the long term.

The challenge we face, as you pointed out in the first Panel, is, how do you make that transformation quickly without disrupting the economy. And I think that is the balance that we have to keep in making those kind of transformations, working with government and industry together.

Chairman BARTLETT. Mr. Huffman, I would like to comment briefly on your suggestion for the USE Center, the U.S. Energy Center. We have been concentrating here in these two hearings this morning--these two Panels this morning, on the availability internationally of gas and oil and somewhat on the availability here in this country. I would like to point to another dimension that makes your U.S. Energy Center even more needed. We have 2 percent of the known reserves of oil in the world. We consume 25 percent of the world's oil. This is clearly a prescription for disaster. At the time of the Arab Oil Embargo when we, in effect, went screaming into the

night because of the problems that we were facing. We imported 35 percent of our oil. Today, we import 56 or more percent of our oil. From a national security viewpoint, we desperately need the kind of a center that you point to.

And freeing ourselves from our dependence on these high-quality fossil fuels, gas and oil, isn't just an economic consideration. It is a national security consideration. We cannot afford to be held hostage by the rest of the world because we produce so little of the oil that we use in this country. With only 2 percent of the known reserves in this country, we clearly face a very uncertain energy future. And I would concur with you that we need the equivalent of the national effort that we put into putting a man on the moon.

By the way, there are 200-and-some industries in Maryland alone that wouldn't be there if it weren't for the spin-off that came to that. No longer does government push the envelope. We now are buying most of the stuff we put in our space and our military equipment, we are buying it what we call COTS, commercial-off-the-shelf. And I would like to see an effort equivalent to putting a man on the moon to do something about energy. We face a very uncertain energy future worldwide. And particularly in this country, with having only 2 percent of the known reserves of oil, we face a very, very uncertain energy future that impacts our national

security. And I think that should be reason enough to justify a center of that magnitude.

Let me recognize my colleague if he has additional questions or comments.

Mr. COSTELLO. Mr. Chairman, I do not. I thank the witnesses for being here today and I thank you for calling the hearing.

Chairman BARTLETT. I want to thank the witnesses. Thank you very much for your testimony. This has been a productive hearing, I think. And we will now be in adjournment.

[Whereupon, at 12:55 p.m., the Subcommittee was adjourned.]

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GAY H. FRIEDMANN

Dear Frank,

Advise great to see you in your new role. Your idea of a community task force is good & we look forward to working with you all. Enclosed are a couple of INGAA's energy policy packets. We do not yet mention pipeline

safety in these materials. We will forward the results of geologic inspection, influence & potential disruptions as soon as it is available.

Sincerely,

Jay

Department of Energy
Washington, DC 20585

SEP 19 2001

Mr. Ron Bailey, Jr.
PRM Energy Systems, Inc.
504 Windamere Terrace
Hot Springs, Arkansas 71913

Dear Mr. Bailey:

Thank you for your letter of June 21, 2001 to Vice President Dick Cheney, regarding your concern with information printed in the National Energy Policy. Your letter has been forwarded to me for a response. My office oversees research in the development of a number of renewable energy technologies, including the conversion of biomass resources for power generation.

We recognize your exception to the characterization of the FERCO gasifier technology contained in the National Energy Policy Report. We have also been concerned that, in the process of preparing this important and anxiously awaited energy strategy document, clarifying language was inadvertently deleted. The passage would more correctly have read: "...the world's first medium-Btu biomass gasification system for electricity production." We appreciate the very valuable contribution that your company and your technology are making to the energy mix in the United States and the world. Your continuing efforts to market and improve the PRM technology, as you point out in your letter, provide important economic development and environmental benefits. Please rest assured that the FERCO gasifier project, which has been the subject of Congressionally-directed funding for the past several years, is held to specific performance metrics which it has successfully met in the course of attracting substantial private investment.

Please accept our apologies for this unfortunate editorial mishap. We wish you and your company every success and hope, perhaps one day, to participate with you in a project.

Sincerely,

Donald K. Richardson
Director
Office of Biopower and Hydropower Technologies
Energy Efficiency and Renewable Energy

2001-021611 9/21 P 4:32

OFFICE OF THE VICE PRESIDENT
WASHINGTON

021611 2001 SEP 21 P 4:32

September 20, 2001

The Honorable Spencer Abraham
Secretary of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Dear Mr. Secretary:

Enclosed are numerous unsolicited proposals and idea papers that we received from citizens from all across the country during the development of the National Energy Policy, and in the months to follow. Many of these individuals and companies have already received correspondence and acknowledgement from the NEPDG and/or the Vice President's office.

What most of these citizens are looking for, however, is for review and consideration of their proposals and ideas by program professionals. In turn, we would appreciate your vetting these proposals out to the appropriate departments within your agency for review. If you would, please have the appropriate staff respond with a direct reply to each of these individuals or companies.

Thank you for your assistance. I know these citizens will greatly appreciate receiving a response from the Department of Energy.

Sincerely

Andrew D. Lundquist
Director, National Energy Policy
Development Group

28972-

The Secretary of Energy
Washington, DC 20585

2001-020271

September 21, 2001

The Honorable Paul Schell
Mayor of Seattle
Seattle, WA 98104-1873

Dear Mayor Schell:

Thank you for your letter to President Bush regarding the National Energy Plan (NEP) and your interest in energy conservation. The NEP, released on May 16, 2001, contained 105 recommendations to improve our energy future. Of those, 54 dealt directly or indirectly with energy efficiency and renewable energy.

This Administration strongly supports energy efficiency as one of the building blocks to a strong energy policy while recognizing the need to increase supply. Adding additional fuel supplies will reduce our dependence on foreign sources and increase our energy independence. An entire chapter of the Plan discusses the importance of savings gained by energy efficiency and outlines a broad scope of activities to improve efficiency throughout the Federal Government and beyond.

We are moving ahead in our efforts to implement many of NEP recommendations. The Office of Energy Efficiency and Renewable Energy (EERE) is in the process of performing a strategic program review to prioritize programs and clarify the linkages of research with real world outcomes. Additionally, EERE held a series of public meetings across the country in June to receive public comments on the objectives of the current energy efficiency and renewable energy research, development, demonstration, and deployment programs and whether these programs are achieving intended objectives. In response, we received comments from approximately 5,000 people and organizations. Our energy efficiency and renewable energy programs will contribute to an improved energy future for our Nation when the above efforts are completed.

If you have any further questions, please contact me or Mr. Dan R. Brouillette, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Spencer Abraham

Department of Energy
Washington, DC 20585

2001-800058

September 25, 2001

The Honorable Jeff Bingaman
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

On May 24, 2001, Spencer Abraham, Secretary of Energy, testified, regarding the Administration's National Energy Policy Report.

Enclosed are the answers to seven questions requested by Senator Murkowski. The three remaining answers are being prepared and will be forwarded to you as soon as possible.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Barbara Barnes at (202) 586-6341.

Sincerely,

Dan R. Brouillette
Assistant Secretary
Congressional and Intergovernmental Affairs

Enclosures

From Senator Murkowski:

Alaska Oil and Gas:

I am pleased to see that the National Energy Policy encourages the development of the 1002 Area of ANWR.

I am also pleased to see the Administration encouraging the development of a natural gas pipeline to bring Alaska natural gas to market in the Lower 48.

FE 1a. ▸ To what extent do these provisions constitute a key portion of your National Energy Policy?

1b. ▸ In your opinion, are financial incentives necessary to develop these resources, or is it simply a matter of access to lands for development and pipeline siting?

The Alaska Natural Gas Transportation Act (ANGTA) directed the President to appoint a Federal Inspector to ensure expedited construction of an Alaska gas pipeline.

The Energy Policy Act of 1992 abolished that position but transferred the Federal Inspector's functions and authorities to the Secretary of Energy. These functions and authorities are the keys to expediting construction of the pipeline.

FE 2. Do you currently have the staff and resources to carry out the function and authorities of the Federal Inspector?

Energy Efficiency:

The National Energy Policy indicated that energy efficiency and improved energy conservation should be made a "national priority"

EE 1. How do you as Secretary of Energy plan to translate this "priority" into concrete action?

2. Other than tax incentives for consumer purchase of new energy efficient technology, what policy options exist?

Fuel Economy/CAFÉ:

PO The National Energy Policy deferred on the question of increased CAFÉ standards for auto fuel economy until the National Academy can finish its review as directed by Congress last year.

1. Are there options to improve auto fuel economy – other than CAFÉ standards – that you will consider?

Renewable Energy:

Over just the past five years, we've spent $1.5 billion on renewable energy R&D and another $5 billion on tax incentives.

Yet the proportion of renewable energy in our total energy mix has remained the same, around 5%

1. In your opinion, what is a realistic view of renewables as a portion of our energy mix over the next 10-20 years?

EE

2. Are there specific applications or sectors in which renewables are more likely to contribute?

As part of the National Energy Policy, you have been directed to carry out a review of all energy efficiency and renewable energy R&D programs – and focus on those that are "performance based"

1. Does this imply a greater focus on "proof of concept" demonstration projects over basic research?

EE

2. Are plans under way for such a review and when do you expect such a review might conclude?

From Senator Dorgan:

1. I have been working closely with DOE and WAPA to increase the amount of renewable power purchased by the federal government. I have understood that the Administration would stand by its commitment to purchase energy from WAPA through a new "green tags" program. This program would solicit 60-70 megawatts of renewable power from anywhere within WAPA's territory for sale to the federal government.

   PMA

   Is the Department still committed to ongoing efforts to purchase and develop such a renewable energy program?

QUESTIONS FROM SENATOR MURKOWSKI

Alaska Oil and Gas

Q1a. I am pleased to see that the National Energy Policy encourages the development of the 1002 Area of ANWR. I am also pleased to see the Administration encouraging the development of a natural gas pipeline to bring Alaska natural gas to market in the lower 48. To what extent do these provisions constitute a key portion of your National Energy Policy?

A1a. These provisions are a key portion of the National Energy Policy in meeting our Nation's needs for oil and natural gas. The U.S. Geological Survey 1998 assessment of the greater 1002 area indicates technically recoverable resources ranging from 5.7 to 16 billion barrels of oil, and from 0 to 10 trillion cubic feet of natural gas. Additionally, the U.S. Geological Survey estimated that Northern Alaska has 35 trillion cubic feet of commercially recoverable natural gas. These significant resources are keys to meeting the Nation's energy needs.

Q1b. In your opinion, are financial incentives necessary to develop these resources, or is it simply a matter of access to land for development and pipeline siting?

A1b. The U.S. Geological Survey's 1999 economic analysis of its 1998 assessment of the 1002 Area alone indicates that about half of the technically recoverable oil resources (2.03 to 9.38 billion barrels of oil, and from 1.04 to 3.72 trillion cubic feet of associated natural gas) are economically recoverable at today's prices using today's technology. This indicates that market forces provide adequate financial incentive to develop these resources. However, in addition to this economic assessment, the Department of Energy, in partnership with the industry, is developing advanced technologies that will reduce the costs of recovery and environmental compliance, and increase recovery and environmental protection.

QUESTIONS FROM SENATOR MURKOWSKI

Alaska Oil and Gas

Q2. The Alaskan Natural Gas Transportation Act (ANGTA) directed the President to appoint a Federal Inspector to ensure expedited construction of an Alaskan gas pipeline.

The Energy Policy Act of 1992 abolished that position but transferred the Federal Inspector's functions and authorities to the Secretary of Energy. These functions and authorities are the keys to expediting construction of the pipeline.

Do you currently have the staff and resources to carry out the function and authorities of the Federal Inspector?

A2. Subsequent to the abolition of the Federal Inspector's Office by the Energy Policy Act of 1992, there has been little activity related to the proposed natural gas pipeline from Alaska's North Slope. In the absence of any activity there are no Department staff or resources assigned to perform the functions of the Federal Inspector's office.

The infrequent requirements for analysis or comment on the Alaskan Natural Gas Transportation System (ANGTS) has been handled by the Office of Fossil Energy and the Office of General Counsel. This same staff has been conducting the initial coordination between our Department and other Federal agencies, as well as consultations between our Department and Canadian government agencies and the State of Alaska in preparation for a possible filing concerning the ANGTS or other North Slope gas project.

Should a filing be made for the ANGTS and it becomes necessary for the Department to exercise the authorities of the Federal Inspector, we would assign qualified staff from other program areas to meet the requirements of carrying out the responsibilities of the Federal Inspector's authority.

QUESTIONS FROM SENATOR MURKOWSKI

Energy Efficiency

The National Energy Policy indicated that energy efficiency and improved energy conservation should be made a "national priority."

Q1. How do you as Secretary of Energy plan to translate this "priority" into concrete action?

A1. The National Energy Policy will build upon our nation's successful track record and will promote further improvements in the productive and efficient use of energy. Of the 105 recommendations in the Policy, over twenty of these recommendations address energy efficiency, either directly or indirectly. These actions promote conservation in residences, commercial establishments, industrial sites, electrical power plants, and transportation. Implementing these actions will enable us to continue our trend of decreasing energy use per dollar of GDP, while improving our standard of living.

Q2. Other than tax incentives for consumers purchase of new energy efficient technology, what policy options exist?

A2. This Policy report uses almost every tool available in order to promote energy conservation. Allow me to provide a few examples from the Policy:

Education: One recommendation directs the EPA Administrator to develop and implement a strategy to increase public awareness of the sizeable savings that energy efficiency offers to homeowners across the country.

Information: Another recommendation directs the Secretary of Energy to promote greater efficiency by expanding and extending the application of the Energy Star labeling program.

Executive Directive: This recommendation directs the heads of executive departments to take appropriate actions to conserve energy at their facilities.

Financial Incentives for Industry Utilities: One recommendation directs the Secretary of Treasury to work with Congress to encourage energy efficiency through Combined Heat and Power projects by shortening their depreciation life.

Standards: This recommendation directs the Secretary of Transportation to review and provide recommendations on establishing Corporate Average Fuel Economy Standards for the U.S. automotive industry.

Federal R&D: This recommendation directs the Secretary of Energy to review and provide recommendations on the appropriate level of energy efficiency program funding.

QUESTION FROM SENATOR MURKOWSKI

Fuel Economy/CAFÉ

The National Energy Policy deferred on the question of increased CAFÉ standards for auto fuel economy until the National Academy can finish its review as directed by Congress last year.

Q1. Are there options to improve auto fuel economy – other than CAFÉ standards – that you will consider?

A1. Yes. The National Energy Policy report indicates that the Department of Transportation should consider, in addition to modified CAFÉ standards, other market-based approaches to increasing the national average fuel economy of new motor vehicles. The Department of Energy is analyzing possible forms of voluntary fuel economy improvement agreements to support the DOT's consideration of a broad range of approaches. In addition, the report calls for the Secretary of Treasury to work with Congress on legislation to increase energy efficiency with a tax credit for fuel-efficient vehicles. The NEPD Group recommended that a temporary, efficiency-based income tax credit be available for purchase of new hybrid or fuel cell vehicles between 2002 and 2007. The Department of Energy will be working closely with both the Treasury and Transportation Departments to implement these recommendations.

QUESTIONS FROM SENATOR MURKOWSKI

Renewable Energy

As part of the National Energy Policy, you have been directed to carry out a review of all energy efficiency and renewable energy R&D programs – and focus on those that are "performance based."

Q1. Does this imply a greater focus on "proof of concept" demonstration projects over basic research?

A1. No. We will be reviewing all programs to determine their performance and potential in terms of delivering benefits to the public. We will reevaluate those programs that have not made progress toward national energy goals. Likewise, we will be redoubling our efforts in those programs that have shown, and continue to show, good performance and potential in contributing to national energy goals. I expect that when the review is complete we will have a range of activities that are performance-based, including both proof of concept projects and basic research programs. This would be consistent with developing a balanced energy technology R&D portfolio that delivers short-term, intermediate, and long-term energy benefits.

Q2. Are plans under way for such a review and when do you expect such a review might conclude?

A2. On May 23, 2001, I announced the schedule for the review of both the energy efficiency programs and the renewable energy and alternative energy programs. The Department has completed its public comment period and is continuing with it's Strategic program review of EERE programs. Our review will be completed by September 1.

2001-800057

Department of Energy
Washington, DC 20585

September 25, 2001

The Honorable Jeff Bingaman
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

On May 24, 2001, Spencer Abraham, Secretary of Energy, testified, regarding the Administration's National Energy Policy Report.

Enclosed are the answers to seven questions requested by Senator Murkowski. The three remaining answers are being prepared and will be forwarded to you as soon as possible.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Barbara Barnes at (202) 586-6341.

Sincerely,

Dan R. Brouillette
Assistant Secretary
Congressional and Intergovernmental Affairs

Enclosures

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2001-800065

Department of Energy
Washington, DC 20585

September 25, 2001

The Honorable Joe Barton
Chairman
Subcommittee on Energy and Air Quality
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Enclosed are the edited transcripts of the June 13, 2001, testimony given by Spencer Abraham, Secretary of Energy, regarding the National Energy Policy Report.

Also enclosed is the insert you requested to complete the hearing record.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Barbara Barnes at (202) 586-6341.

Sincerely,

Dan R. Brouillette
Assistant Secretary
Congressional and Intergovernmental Affairs

RPTS BULKLEY

DCMN MAGMER

NATIONAL ENERGY POLICY REPORT OF THE NATIONAL ENERGY POLICY DEVELOPMENT GROUP

Wednesday, June 13, 2001

House of Representatives,

Committee on Energy and Commerce,

Subcommittee on Energy and Air Quality,

Washington, D.C.

The subcommittee met, pursuant to call, at 9:59 a.m., in Room 2123, Rayburn House Office Building, Hon. Joe Barton [chairman of the subcommittee] presiding.

Present: Representatives Barton, Cox, Burr, Whitfield, Ganske, Shimkus, Wilson, Shadegg, Bryant, Radanovich, Bono, Walden, Tauzin (Ex Officio), Hall, Sawyer, Wynn, Doyle, John, Waxman, Markey, McCarthy, Strickland, Barrett, Luther, and Dingell (Ex Officio).

Also Present: Representatives Eshoo and Harman.

Mr. BARTON. Welcome to the subcommittee, Mr. Secretary. Your statement is in the record in its entirety. We recognize you for such time as you may consume to elaborate on it. Welcome to the subcommittee.

STATEMENT OF HON. SPENCER ABRAHAM, SECRETARY, U.S. DEPARTMENT OF ENERGY

Secretary ABRAHAM. Mr. Chairman, thank you very much. I appreciated the chance today to hear from so many members and to get some perspective on their considerations and concerns. And I want to thank you for having done, in my judgment, a remarkably effective job over the last several months, as we have gone through our transition, to work with us at the Department. You have actually reached out to me on behalf of your committee, on both sides of the aisle really, to set in motion practices by which we can work together over the next few months to not just address this issue but the other issues as well.

And I offer the same comments and appreciation to Congressman Tauzin, to Congressman Dingell, and other leaders of the committee. Certainly we wish to do our best to make it a dialog, to make it a good partnership.

Today I would like to make a brief statement. There were

so many issues raised during the comments of the various members that I would like to do my best to be responsive when we get to the question period on those issues.

What I would like to maybe just do is take a little bit of time today to talk about the challenges we face and to try to briefly summarize how the President with our National Energy Plan proposes to address those challenges in days ahead.

Today, America consumes 98 quadrillion British thermal units, or quads as they are called, a year in all forms of energy. Our domestic production is 72 quads, which means that the imbalance between demand and supply is made up with imports.

Between now and 2020 our energy demand is projected to rise significantly. If the energy intensity of the United States economy--that is, the amount of energy needed to generate a dollar of GDP--remained constant over those 20 years, our demand in the year 2020 would rise from 98 quads per year to 175. Fortunately, we believe that our plan, current policies, and the combined interests of people on all forums and all sides of the policy debate will work together to improve energy efficiency over that period to the point that the actual energy demand in 2020 can be lowered from 175 to 127 quads.

That means improved energy efficiency can help close much

of the gap between projected energy demand and projected energy production. And we are committed to doing just that.

However, improved energy efficiency alone cannot do the whole job. And for that reason, the United States will need more energy supply. The question is, where do we get that increased supply when over the last decade domestic supply production has remained relatively flat?

To address those challenges both in terms of achieving the efficiency gains we need as well as the supply gains we require, our National Energy Plan has adopted an approach that we believe is balanced and comprehensive. As the President said, we are looking for a new harmony among our priorities. So let me just briefly outline the approach for the committee.

First, our policy balances the need for increased supplies of energy with the need to modernize our conservation efforts by employing cutting-edge technology to gain the energy efficiencies I have talked about. So, for example, as we call for recommendations to enhance oil and gas recovery from existing and new sources through new technology, we also call for recommendations on corporate average fuel economy standards.

Second, our plan calls for diversity in terms of our supply sources. With electricity demand forecast to rise 45 percent between now and the year 2020, we estimated

that--that is, the Department of Energy's Energy Information Administration estimates the needs for an additional 1300 to 1900 new power plants in this country. Current policy anticipates that over 90 percent of those new plants will be fired by natural gas.A number of members of this committee already have commented on the potential implications of placing so much reliance on a single fuel source. We believe energy security dictates a more balanced approach to new power generation.

In addition to natural gas, the National Energy Plan looks to clean coal generation and nuclear power to give us the broad mix of energy-to-energy support and energy security from traditional sources. But our plan also balances our pressing requirements for the aforementioned traditional source of energy with the need for renewable and alternative sources such as hydropower, biomass, solar, wind and geothermal sources. The plan seeks to increase exploration of domestic sources of oil and natural gas, and it also recommends tax incentives for the use of certain renewables and more focused research on next-generation sources like hydrogen and fusion.

Fourth, our energy plan harmonizes growth in domestic energy production with environmental protection. This commitment to conservation and environmental protection is not an afterthought. It is a commitment woven throughout our

energy policy. Energy production without regard to the environment is not an option. For example, in addition to recommendations seeking to streamline the permitting process for plant sitings as well as building new infrastructure, the National Energy Policy also directs the Environmental Protection Agency to propose mandatory reduction targets for the emission of three major pollutants: sulfur dioxide, nitrogen oxides, and mercury from electricity generation.

We support this balanced approach with 105 recommended actions covering the full range of energy challenges confronting this Nation, and indeed the world, from how best to enhance renewable sources to oil and natural gas development in the Caspian Sea.

The administration can carry out many of these recommendations on its own, either through executive orders or agency-directed actions. We are moving ahead to implement proposals as quickly as possible.

Just days after the release of our National Energy Report, the President issued two executive orders directing Federal agencies to expedite approval of energy-related projects and directing Federal agencies to consider the effects of proposed regulations on energy supply distribution or use. Moreover, where appropriate, the President is directing Federal agencies, including my own, to take a variety of actions to improve the way they use energy and to

carry forward critical aspects of this policy. For example, I have instructed our Office of Energy Efficiency and Renewable Energy to carry out a strategic review of its renewable energy research and development programs in light of the recommendations contained our National Energy Policy.

Hydropower, geothermal, winds, and other renewables are highlighted in our report for the contribution they are making and continue to make to energy security. Promising next-generation technologies will also play a part in solving our energy challenges. Both current and future technologies will be a part of our strategic review.

I have asked that the study begin immediately--and it has--and to be completed by September 1st. And its finding will permit us to recommend appropriate funding levels that are performance based and modeled as public-private partnerships. Twenty of the report's recommendations, however, clearly require direct legislative action, and I think we will find more areas for cooperation than disagreement.

This committee has a long and proud tradition of passing bipartisan energy legislation dating back to the 1970s. I look forward to working with the committee to develop energy policy legislation consistent with those bipartisan traditions.

So I believe that we start with a wide base of agreement.

From what I have heard today, I would say that the agreement is in wider consensus than I might have anticipated. We all recognize energy is a critical challenge. We all recognize that parts of our energy supply and delivery system need enhancement or modernization. We all recognize that conservation and stewardship must go hand in hand with increasing domestic supply.

Naturally, there will not be complete agreement, and the President is strongly committed to the adoption of his recommendations. But I truly believe that we have the basis for working together to meet America's serious energy crisis.

Mr. Chairman, I want to thank the members of the committee for the very kind reception I have received here today, and I do look forward to working with every member of the committee as we move forward, both here at the subcommittee and the full committee, to address many issues including the challenges presented here today.

[The statement of Secretary Abraham follows:]

******** INSERT 2-1 ********

Statement of the Honorable Spencer Abraham

Secretary of Energy

before the

House Committee on Commerce

on National Energy Policy

June 13, 2001

Introduction

Thank you Mr. Chairman.

I appreciate the opportunity to come before this committee today to discuss the President's National Energy Policy, which was developed by the National Energy Policy Development Group under the direction of Vice President Cheney. Before taking your questions, I would like to make a brief opening statement.

My statement will outline the scope of the energy challenge we face over the next two decades, summarize the approach the President has determined will best address this challenge, and finally emphasize why I am optimistic that we can find a consensus in this country on policies that promote long-term energy security for our citizens.

America's Energy Challenge 2001-2020

Today, America consumes 98 quadrillion British thermal units (or quads) a year in all forms of energy. Our domestic energy production is 72 quads. The imbalance between energy demand and domestic energy production is made up with imports.

Between now and 2020, our energy demand is projected to rise significantly.

If the energy intensity of the U.S. economy – the amount of energy needed to generate a dollar of Gross Domestic Product – remained constant, our energy demand in 2020 would be 175 quads.

However, our plan and current policies are projected to improve energy efficiency to the point that energy demand in 2020 can be lowered from 175 quads to at least 127 quads.

That means improved energy efficiency can help close much of the gap between projected energy demand and projected domestic energy production and we are committed to doing just that.

However, improved energy efficiency cannot do the whole job. For that reason, the United States will need more energy supply.

The question is: where do we get that increased supply when over the past decade domestic supply production has remained relatively flat?

-- Our Balanced Approach

To address these challenges, our National Energy Plan has adopted an approach that is balanced and comprehensive. As the President said, we are looking for a new harmony among our priorities.

Let me briefly outline this approach for the Committee.

First, our policy balances the need for increased supplies of energy with the need to modernize our conservation efforts by employing cutting edge technology.

And so, for example, as we call for recommendations to enhance oil and gas recovery from existing and new sources through new technology, we also call for recommendations on Corporate Average Fuel Economy standards.

Second, our Plan calls for a diversity in terms of our supply sources.

With electricity demand forecast to rise 45 percent by 2020, we estimate the need for an additional 1,300 to 1,900 new power plants in the country.

Current policy anticipates that over 90 percent of those new plants will be fired by natural gas.

We believe energy security dictates a more balanced approach to new power generation.

In addition to natural gas, the National Energy Plan looks to clean coal generation and nuclear power to give us the broad mix of energy needed to meet growing demand and support energy security.

Third, our plan balances our pressing requirements for the aforementioned traditional sources of energy with the need for renewable and alternative sources such as hydropower, biomass, solar, wind, and geothermal.

The Plan seeks to increase exploration of domestic sources of oil and natural gas. And it also recommends tax incentives for the use of certain renewables and more focused research on next-generation sources like hydrogen, and fusion.

Fourth, our energy plan harmonizes growth in domestic energy production with environmental protection.

This commitment to conservation and environmental protection is not an afterthought; it is a commitment woven throughout our energy policy.

Energy production without regard to the environment is simply not an option.

For example, in addition to recommendations seeking to streamline the permitting process for plant sitings as well as building new infrastructure, the National Energy Policy also directs EPA to propose mandatory reduction targets for emission of three major pollutants – sulfur dioxide, nitrogen oxides, and mercury – from electricity generation.

Building Consensus

We support this balanced approach with 105 recommended actions, covering the full range of energy challenges confronting this nation -- and indeed the world -- from how best to enhance renewable sources, to oil and natural gas development in the Caspian Sea.

The Administration can carry out many of these recommendations on its own, either through executive orders or agency directed actions. We are moving ahead to implement proposals as quickly as possible.

Just days after release of our National Energy Report, the President issued two executive orders directing Federal agencies to expedite approval of energy-related projects and directing Federal agencies to consider the effects of proposed regulations on energy supply, distribution, or use.

Moreover, where appropriate, the President is directing Federal agencies, including my own, to take a variety of actions to improve the way they use energy and to carry forward critical aspects of his policy.

For example, I've instructed our Office of Energy Efficiency and Renewable Energy to carry out a strategic review of its renewable energy research and development programs in light of the recommendations in our National Energy Policy.

Hydropower, geothermal, wind, and other renewables are highlighted in our report for the contribution they are making and can continue to make to energy security. Promising next-generation technologies will also play a part in solving our energy challenges. Both current and future technologies will be a part of our

strategic review. I've asked that the study be completed by September 1st. Its findings will permit us to recommend appropriate funding levels that are performance based and modeled as public-private partnerships.

Twenty of the Report's recommendations require legislative action and I think we will find more areas for cooperation than disagreement.

This Committee has a long and proud tradition of passing bipartisan energy legislation dating back to the 1970s. I look forward to working with the Committee to develop energy policy legislation consistent with its bipartisan tradition.

So, I believe that we start from a wide base of agreement. We all recognize energy as a critical challenge. We all recognize that parts of our energy supply and delivery system need enhancement or modernization. And we all recognize that conservation and stewardship must go hand in hand with increasing domestic supply.

Naturally, there will not be complete agreement and the President is strongly committed to the adoption of his recommendations. But I truly believe we have the basis for working together to meet America's serious energy crisis.

Thank you, Mr. Chairman. I would be glad to take your questions at this time.

END

Mr. BARTON. We thank you, Mr. Secretary. And again we want to welcome you to the committee. The Chair would recognize himself for 5 minutes. We are going to allow each member one round of 5-minute questions. If there are additional questions, we will submit them in writing to the Secretary.

As I said in my opening statement, Mr. Secretary, I think you have got the toughest job in the Cabinet, and I really mean that. But my first question is really more of a personal nature. Have there been any pleasant surprises as Secretary of Energy?

Secretary ABRAHAM. Well, I have to confess, Mr. Chairman, the most pleasant surprise has been the sort of bipartisan sympathy with which I have been treated. Both on the Senate side and here today, I have enjoyed both the welcome that I have received to the job and at the same time the cautionary notes from both sides of the aisle, from friends on both sides of the aisle, telling me how much they sympathize with my plight. But for the fact I was previously unemployed, I suspect I might share that viewpoint.

But obviously the job is a very challenging one but, fortunately, I am very happy to report that a number of the appointees, the nominees of the President to major positions, have now achieved confirmation and another group is moving towards that point, and I think as we get our full complement

of office positions filled that will obviously make my job perhaps a little easier.

Mr. BARTON. Well, let me ask you a little tougher question, then. You are a former Senator from the great State of Michigan. You are very aware that CAFE is not a place you eat in a restaurant, it is Corporate Average Fuel Economy, a fairly controversial issue in your home State. The President and the Vice President and you have come out strongly for conservation. Your proposal as it stands would shave 48 quads of energy from the projected increase in demand if we did nothing in terms of conservation.

Do you have any thoughts that you would care to share with the subcommittee on what a reasonable balanced increase in corporate average fuel economy standards might be that this subcommittee should consider legislatively?

Secretary ABRAHAM. Well, our position as reflected in the plan, is to recommend that the Secretary of Transportation, who under statute has responsibility with respect to CAFE standards, makes recommendations and it is in his domain to do so.

But let me just say I think--Congressman Dingell isn't here, but ~~obviously~~ he and I have worked together on this issue on behalf of our constituents, but we have worked together on behalf of the American citizenry more broadly, with regard to CAFE in recent years. ~~I think that what~~ We effected last year ~~in~~

~~terms of~~ a compromise in the Senate that called upon the National Academy of Sciences to make CAFE recommendations by this July, in time for this year's considerations of the Appropriations Committee. It was an appropriate step to have taken last year. We acknowledged that in the recommendations in the President's report.

I think as you look at the actions taken, without any governmental mandates, by the auto industry, you see a move in the direction of hybrid vehicles designed to improve fuel efficiency. There are ~~The~~ two things I would ~~just, I guess,~~ pose to Members of Congress--and now maybe I am speaking more because of previous roles than I am of my current one. When one considers whatever might be the ultimate standards to take into account, first the issue of safety; and second, the issue of the disparity, the potential disparity effect on American versus foreign manufacturing of changes. I think we need to proceed ahead if we are going to change the fuel efficiency standards consistent with those very important considerations.

The National Highway transportation Safety Administration in the past has indicated that reducing the weight of vehicles has a direct correspondence to traffic fatalities. Gannett News Service in 1999 did a study in which they ~~using--that data~~ concluded that 46,000 Americans have lost their lives as a consequence of changes in the size of

vehicles that came about in efforts to meet CAFE standards. I ~~would~~ hope ~~we would~~ any changes would be considered against that backdrop. ~~And~~ I also recognize that there can be advantages that changes in the fuel efficiency standards might provide to nondomestic manufacturing ~~and try to script~~ any sort of change that might occur ~~so that it had~~ must have an even, rather than an uneven, impact on the various sources of manufacturing.

Mr. BARTON. Okay. This last is not a question as much as it is a comment, something to think about. Your energy policy proposal that the President and the Vice President, you and the other Cabinet secretaries have put forward, shows in the year 2020 we expect to consume 127 quads of energy equivalent in this country. You also show that your policies, if enacted, would save 48 quads of energy from what the projected demand would be if we didn't have any conservation measures. You have a supply side to your policy but it is not quantified.

I don't think we want to become totally energy independent. I have not heard the President or yourself or the Vice President say we should be independent, but I would like to work with you and the other administration officials to come up with a quantifiable target for supply in terms of quad, how much additional quads of oil, natural gas, electricity, coal, nuclear. And think as a starting point,

the fact that you want to save 48 quads. If our supply component were some--it shouldn't be 48 quads increase, but something that gives us a target to shoot for as we go through the process. Would you be willing--.

Secretary ABRAHAM. Let me point out, first of all, the difference that would be remaining is not 48, it would be 29 quads. Let me also say that the gains you just alluded to are ones we believe will happen with these policies, but also with existing policies in place. We would like to go further than that. I hope we can. And we will look forward to working to gaining even further efficiencies.

At the same time, we chose not to try to specify, to make a guess, to pick fuels of choice or sources. We know what the current projections look like. And as I indicated, right now, absent any changes, almost all of, for example, the electricity generation increase we are likely to achieve over the next 20 years would be natural gas-driven increases. And a number of people have already commented on the potential implications of relying on a single source for most of the increase.

What we propose is the notion of balance between sources, both traditional as well as renewable, but also between traditional sources, so that electricity, for example--to try and be brief here, the current Energy Office Administration projections from our Department's independent arm is that as

natural gas would increase, would see a decline in the role of hydropower and nuclear energy in electricity generation over the next 20 years and a very slight increase in the role of renewables.

We chose not to try to specifically pick between those different sources, but our view was to try to put in place policies that would not place total dependency on natural gas but would allow nuclear and hydro and renewables to play more robust roles than predicted and projected today.

Mr. BARTON. Thank you. I am not trying to put you on the spot. I know the natural gas industry says that they would like to be around 30 TCF in natural gas by the year 2010, 2015. The coal people have some targets in terms of their increase if we can help them on clean coal technology.

We don't expect the oil industry to gain supply, t we are hopeful we can we can do steady state. So really looking more at hydroelectric, renewable, and some of the others, and nuclear, to give us some targets. You have a better chance to hit the target if you know what the target is. I mean, every now and then, you just shoot up in the air and you hit something. But most of the time you have got to aim at it. So I just need some help in aiming. I figured you are a pretty good marksman.

With that, I would recognize Mr. Markey for 5 minutes.

Mr. MARKEY. Thank you, Mr. Chairman very much. I have

two posters that I would like to show the committee. The first is from a report by the Federal Government. This is the report on January 11th, 2001--from the Report of the Commission to Assess United States National Security Space Management, an organization which was chaired by Secretary Donald Rumsfeld. The figure is credited to the Headquarters Air Force Space Command. It is captioned, "Space Operations Will Transform the Conduct of Future Military Operations." It shows various high-technology systems anticipated being used by the United States, much of which will be coordinated by the Department of Energy in laboratories of Los Alamos and Livermore.

The Commission was established by Public Law 106-65, and in the National Defense Authorization Act for Fiscal Year 2000.

The second poster that I would like to show you is an air conditioner from the Web page of Goodman Manufacturing. As I mentioned earlier, this already meets the standard that the administration suspended as too onerous. Unlike national missile defense, the technology is virtually off the shelf today. And also, unlike NMD, we know it works because Goodman has already tested it for us in the marketplace.

Now, this is something that Federal employees are going to put together. Pretty complex, huh? Technologically sophisticated. This is something the private sector is

already doing. Now, I would like to believe that the FEC employees are capable of doing this, but I technologically believe it is highly unlikely that we will be shooting down, in a minute and a half, Chinese and Russian missiles heading into our country in the middle of the night anytime soon.

On the other hand, Mr. Secretary, your administration has decided to roll back the 30 percent improvement in air conditioners which the Clinton administration had promulgated. Now, that is going to increase over the next 20 years the need for 43 additional 300-megawatt plants that will have to be constructed in the United States.

Now, I was the author, Mr. Secretary, of the House bill that gave you the authority to promulgate the national apply and efficiency standards. And one of these provisions is a no rollback provision. The reason I built that in was that the Reagan administration had actually flouted earlier laws dealing with this subject. So let me read you the language from the statute. It says: The Secretary may not prescribe any amended standard which increases the maximum allowable energy use or decreases the minimum required energy efficiency of a covered product.

RPTS BULKLEY

DCMN HERZFELD

[12 noon.]

Mr. MARKEY. Here we are talking about air-conditioners. Now, in rolling back, Mr. Secretary, the final air-conditioning rule adopted by the Clinton administration, you are in clear violation of this no rollback provision, and you are in violation of that law at the same time that your administration is saying that there is an energy crisis in our country, and you are also saying that we have a national security crisis that is going to call for the abrogation of the ABM treaty so that we can deploy this new technology over the next 5 to 10 years in the United States that will theoretically provide an impermeable, technological protection for our country.

Mr. Secretary, are you willing to review your decision to abrogate the implementation of the fuel economy standards for air conditioners, especially on a day like today where 35 percent of all electricity in America is heading towards air conditioners--in Texas, it is 75 percent of all electricity heading towards air conditioners--in order to adopt a standard which Goodman Manufacturing has already been able to put out there on the marketplace?

Secretary ABRAHAM. Well, as you know, Congressman, there were two standards under consideration. In our judgment, the

standard which the Goodman Company was proposing was one that would not allow for a competitive marketplace to exist. And I believe one of the ~~, I believe,~~ considerations that we are expected to take into account as we evaluate setting these mandated standards is ~~whether or not~~ --not only what the payback periods would be--that is, to the consumer who has to pay more--and I am not sure what the cost of the Goodman product is; I suspect it is considerably greater than other types of models, which has an impact on the pocketbooks of average families--but also whether or not a competitive market will ensue at the end of the process.

It was not only our judgment, but also, ~~I think,~~ the conclusions reached both by the previous as well as the current Justice Department that there were significant issues with respect to the competitive disadvantages in the marketplace to other manufacturers. This is a case where, in fact, there was a considerable difference between ~~different--or~~ perspectives as to whether or not such a competitive market would exist.

What I would say to you is this. We were ~~have been~~ asked when we came into office to review three rules that were, in our judgment, according to our legal counsel, not in a final stage to have triggered the provisions you have just mentioned. We would be glad to share with you the legal considerations that we have followed. But two of the three

we kept in place, and in this case we have suggested that instead the rule ought to be a 12 versus a 13-sere air conditioner standard, both because it would more effectively address this question of market competitiveness and at the same time be a little more friendly to the pocketbooks of average Americans.

But at the same time, I would note in response to your point that in our National Energy Plan, ~~in the~~--in chapter 4 of the conservation chapter, we have been asked and our agency has been directed to seek to expand the standards in both products in which we already have assessed and placed standards, as well as to expand the number of products that we would consider.

Mr. MARKEY. I think the Chairman--.

Secretary ABRAHAM. I take that seriously, and one of the priorities for us is to review appliance standards, but to determine if additional ones should be considered, as well as, if we go forward into the future, whether or not air conditioners will fall into this or not. We will see.

Mr. BARTON. You can tell that the Secretary was a former Senator. He tends to give us a lot of answer for a short question.

Secretary ABRAHAM. Well, it was not meant to be a patronizing--.

Mr. BARTON. I didn't say that.

Secretary ABRAHAM. --or filibustering.

Mr. MARKEY. I will just say this, Mr. Secretary.

Mr. BARTON. Briefly, because we have got a lot of Members and theoretically only an hour to go.

Mr. MARKEY. In my opinion, Mr. Secretary, we do have an electricity crisis in California. It is not a national crisis, but there is an electricity crisis in California. We need solutions. So far your solutions have been giving us a faith-based electricity policy. You will pray for us across the country, but not give us specific solutions. There is no near-term solution, you say.

But when it comes to where electricity goes, and it is primarily at the air conditioners in the summer in most of the States in the United States, you have decided not to, in fact, impose a tough standard on air conditioners and have rolled back, in my opinion illegally, a final rule promulgated by the Clinton administration that will make it much more difficult for us in the long term to have our country solve this electricity situation, and I think it is an historic mistake which the administration has made.

Thank you, Mr. Chairman.

Mr. BARTON. Before we go to Mr. Shimkus, just so we have the complete record, could you put in the record what the current air conditioner efficiency standard is, what the Clinton administration proposed, and what the Bush/Cheney

administration has promulgated?

Secretary ABRAHAM. Mr. Chairman, I would be glad to do it, and I think people are seeing that we are calling for a significant increase, approximately 20 percent, in the efficiency of air conditioners. As was noted, if people want more efficient air conditioners, today they can go out and purchase them, and I think perhaps some will.

Mr. BARTON. But we need the specific numbers.

Secretary ABRAHAM. I will do that, sir.

[The information follows:]

******** COMMITTEE INSERT ********

COMMITTEE: HOUSE ENERGY AND COMMERCE
SUBCOMMITTEE: ENERGY AND AIR QUALITY
DATE: June 13, 2001
WITNESS: Secretary Spencer Abraham
PAGES: 96-97 Lines 2161

INSERT FOR THE RECORD

Authority	NAECA[1]		January 22, 2001 Final Rule		July 2001 Proposed Rule	
Product class	Seasonal Energy Efficiency Ratio (SEER)	Heating Seasonal Performance Factor (HSPF)	Seasonal Energy Efficiency Ratio (SEER)	Heating Seasonal Performance Factor (HSPF)	Seasonal Energy Efficiency Ratio (SEER)	Heating Seasonal Performance Factor (HSPF)
Split system air conditioners	10	n/a	13	n/a	12	n/a
Split system heat pumps	10	6.8	13	7.7	12	7.4
Single package air conditioners	9.7	n/a	13	n/a	12	n/a
Single package heat pumps	9.7	6.6	13	7.7	12	7.4
Space constrained products other than through-the-wall	10/9.7[2]	6.8/6.6[2]	reserved[3]	reserved[3]	12[4]	7.4[3]
Through-the-wall air conditioners and heat pumps: split systems	10[5]	6.8[4]	reserved[3]	reserved[3]	10.9	7.1
Through-the-wall air conditioners and heat pumps: single package	9.7[6]	6.6[5]	reserved[3]	reserved[3]	10.6	7.0

[1] NAECA, the National Appliance Energy Conservation Act of 1987, Pub. L. 100-12.

[2] Not considered as a separate product class in NAECA, the standards for split system and single package air conditioners and heat pumps apply.

[3] These were space-constrained products, defined in January 22, 2001 notice (66 FR 7196-7197), for which minimum SEER and HSPF values had not been determined. Had the January 22, 2001 rule become effective, SEER and HSPF values would have been determined in a supplemental final rule.

[4] Not considered as a separate class in the July 2001 proposed rule, the standards for split system air conditioners and split system heat pumps apply.

[5] Not considered as a separate product class in NAECA, the standards for split system air conditioners and split system heat pumps apply.

[6] Not considered as a separate product class in NAECA, the standards for single package air conditioners and single package heat pumps apply.

Mr. BARTON. Because my understanding is you have supported an increase in the efficiency.

Secretary ABRAHAM. Right. That is correct.

Mr. BARTON. But not as high a number as the outgoing Clinton administration proposed. Isn't that correct?

Secretary ABRAHAM. That is right.

Mr. BARTON. The gentleman from Illinois. And we are going to try to continue so that we don't shut the hearing down. So if you folks want to go vote and then come back, that would be appreciated.

Mr. Shimkus for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman, and the rules--the numerous rules and regulations promulgated by the last administration as they left off, this is one of those last-minute, in the dark of the night, surprise, and you have this. So I think it is meritorious to review those.

But what is interesting, this is really an ideological debate, because my friend from Massachusetts--I am sorry he left, but there are votes--is that the market has already responded to higher efficiency standards. The market is what we are trying to make sure works. We need to have a diversified fuel portfolio so that the market can best choose the right fuel for the right use. If you continue to put all your eggs in one basket, which we have done over the past 8 years, which is natural gas, you don't have the flexibility

for the market to choose the best fuel for the best use, and so that is why I applaud the administration.

One of the last-minute rules that this administration did not promulgate, which they had ample opportunity to, was the California waiver. The Clinton administration had a full 18 months to make a decision on the California waiver but chose to leave office without taking a position. The last technical submissions from the State of California concerning its petitions were submitted in February 2000, a full 11 months before the end of the Clinton administration. I could only assume that the Clinton administration did not see--there was no meritorious position, otherwise it would have been lumped in with all those other last-minute rules and regulations.

But it is a great debate, because what it does is it has supposed clean air advocates arguing against clean air, and I know this is kind of an EPA thing, but it is timely, and it has supposed pro-oil individuals against big oil.

So, again--but make no mistake, there is one proethanol Member of Congress. There is many of us, but there is one right here supporting ethanol, so I am not trying to, you know, hide my true colors. But the reality is the whole debate is fascinating from the aspect of those who support clean air are talking against ethanol and the oxygen standard, and those who should be siding with big oil

actually sided against big oil.

But I do think, as in my opening comment, having internal ability to refine and have natural resources of fuel helps decrease our alliance on foreign oil, and I think that is very, very important.

And I have to respond also to the other comment on the national missile defense. Just because this is one Member of Congress--first of all, it is not designed to shoot down every missile that will be launched from every country at one time. It is designed to be able to knock down a rogue nation, a terrorist missile attack. And this is one Member of Congress who will--I am willing to take that one shot of a bullet hitting a bullet if it means protecting Los Angeles, California, or Chicago, Illinois, or Washington, D.C. I am not going to be the person who says, no, I didn't think that was important enough. I am going to let that go.

So to my friends on the left who don't--who doesn't think national security and the ability to defend our people is that important, I would say it is probably the primary role of the Federal Government is to protect its citizens.

Now I will go on two issues. I am going to continually focus on the biofuels component of a National Energy Policy. Although in southern Illinois, we do have marginal wells. We have abundant coal reserves. We do have, as I said, the reprocessing uranium facility that is in the deep south in

Metropolis, Illinois, but, of course, ethanol and biodiesel have been projects that I have undertaken. And a couple years ago we were able to help pass an addition to the Energy Policy Conservation Act, which allowed the fuel addition of biodiesel to be considered to help decrease our reliance on foreign oil.

We have another piece of legislation that has been submitted within the last couple of weeks to affect the--and it really is through the Transportation Committee, but for your information, it does tie in, because any time we use biofuels in any percentage, mixture with petroleum-based fuels, it decreases our demand for the petroleum-based product. That is why ethanol is helpful. That is why biodiesel is helpful.

And if it can help clean the air--I would just want to put on record, Mr. Secretary, so you know, that we have dropped legislation on the Congestion Mitigation Air Quality Act, which would allow, you know, credit for fuel usage of a renewable fuel additive so that you can get credit for the using of biodiesel or ethanol in these highly dense transportation corridors that are congested, and there is a clean air aspect. There is a renewable fuel aspect and all the great things that are involved.

The last thing that I will mention, since I am the only one talking, and no one else is around--.

Mr. BARTON. We have Mr. John and Mr. Cox here.

Mr. SHIMKUS. How am I doing on time, Mr. Chairman?

Mr. BARTON. You are 23 seconds over.

Mr. SHIMKUS. Well, then I yield back my time.

Mr. BARTON. All right.

The gentleman from Louisiana is recognized for 5 minutes.

Mr. JOHN. Mr. Secretary, thank you very much for coming. Being from Louisiana, which is a producing State, I really understand the industry as a whole and how it impacts from an ecc nomic standpoint, and as from being a Member of Ccngress for the last 6 years, I understand it on the national level and its importance to our security, to our national security and other things.

I seem to try to put it into very easy-to-understand components that all make up an energy policy, and, number one, I think you have to find it. Number two, you have to refine it. And number three, you have to transport it. And each one of those components, as simple as they may seem, is a very critical component of delivering an energy policy that I think all of America wants.

And I would like to focus just a little bit on the transport part of my analogy. Now, it is my understanding that in California, we can--the pipelines that lead to the border can deliver a lot more natural gas, but once they get to the border, they get choked out, and--from that situation

other complications happen.

I would like to focus in on your transport part of the policy and how do you envision delivering, whether it is pipelines for natural gas that fuel electricity power plants or transmission lines that, without them, you really have a bottleneck and a problem. And I think that is a very important part of the whole energy debate. Some people in America seem to maybe focus on the production side, and it is high profile and Federal lands, other things that seem to be politically, you know, very--that sit on a powder keg. But I think transportation of whether it is electricity, gas or crude is very important. Could you hit on that, please?

Secretary ABRAHAM. Well, just ~~as first~~ a broad statement, I would just say that we have devoted an entire chapter of the energy plan to the infrastructure challenges we confront, for a good reason, which is that ~~even~~ if we increase supply, or even, just ~~if we just can~~ maintain current supply levels, if we have lack of capacity to deliver the supply, as you have indicated we have--.

Mr. JOHN. That is my point exactly.

Secretary ABRAHAM. --it affects price. It obviously affects shortage issues as well.

~~We are in the~~ In the plan we are making a number of recommendations. With regard to the pipelines, the President ~~calls for~~ directs Federal agencies on an interagency basis

to try to work together for the purposes of designing and developing recommendations to expedite the permit process that is involved in pipeline siting.

He also has encouraged FERC to consider improvement in the regulatory process which governs the approval of these interstate systems. And we also endorse Senator McCain's legislation with regard to pipeline safety.

At the same time, on the transmission side, we have a number of recommendations which play a fairly active role in development ~~developing~~, because ~~I think~~ with regard to electricity transmission, we face a greater challenge, and that challenge comes about because of the fact that there is no Federal authority to site electricity transmission. We have ~~had~~ that capacity with respect to oil pipeline, natural gas pipeline at the Federal level. We do not have that power with respect to electricity.

What we have in this country is an electricity transmission system that was largely constructed at a time when a local power plant serviced its community. It was not developed for long-haul transmission. It was not developed for a national energy or electricity market. As we have strived for more competition in the marketplace of electricity, we have done so primarily with regard to price control issues. And California has obviously had one type of experience, Pennsylvania another.

But even as we deregulate on the price side, we still have the challenge if there isn't a sufficient number of sellers available or buyers or vice versa, and so what we are talking about, and actually interestingly it was, I think, well stated by Congressman Sawyer's remarks--in his remarks, of the notion of moving towards a national highway system for electricity.

What we propose is several steps to get there: Step number 1, an analysis by my Department to try to determine where we need more transmission, where we need more interconnectivity.

Second, a process that would involve encouraging the FERC to develop a rate structure system that would encourage, through rates, the construction of the additional transmission.

Third, for us to consider the benefits of a national grid. That is for the Department to make a review of that and recommendations.

Also looking at the Federal facility, such as the Bonneville, BPA Administration to determine whether they need--and somebody--I think Congressman Walden asked about this-- whether we need to expand their debt availability so they can participate in construction.

But finally, of asking for us to develop legislation that would provide the Federal Government with an eminent domain

power to address situations that might arise where we need interconnectivity.

And there certainly have been many examples in recent years where the--where we are talking about interstate situations where somebody just won't take the action. The authority lies at the State and local level. If a community or a State decides it will not site transmission, it may make a problem far more acute.

We have cities in this country that are limited in terms of how much electricity they can import, considerably constrained in that regard, such as New York. We have States, because of their nature, some--for example, Florida, because of being a peninsula--where we have similar kinds of limits in terms of importation. And within States or within regions, we have these. And I don't see--at least it wouldn't be my vision that the Federal Government, ~~with~~ once having identified these problem areas, immediately launch through an imminent domain power, siting program.

Rather, I would hope we could ~~develop~~ working together to develop legislation that once we identify these, we bring them to the attention of the appropriate regulators at the State and local level; that we work with FERC to perhaps provide a rate structure that encourages transmission development. But ~~that~~ there should be at least a last resort option available to us at the Federal level to make sure that we

don't have the kinds of challenges that some parts of the country confront, of being in situation where they literally can't import anymore generation where they need it most.

Mr. JOHN. First, let me encourage you to research and study the national electric highway grid. I think it is meritorious. I think that there is some substantial reason to go about that. When you look--when you are looking at the economy today and all these e-businesses that are popping up everywhere, you are not sure where they are, and it really doesn't matter. And I think that same mindset may overlap on electricity. If it can be generated somewhere, does it matter where it comes from if it is going to plug into a grid, into a national highway grid?

Secretary ABRAHAM. Well, if I could just say--and I know I may be a little bit over here, but if I could just add one other point. In addition, it would help us--if we were to resolve these bottlenecks and so on, helping us deal with opening a more competitive system, and in addition to helping us address situations where there might be an electricity shortage in one area and a surplus in another that right now can't be used to address the shortage.

And also I think it could open the way ultimately for us to address the NIMBY problem, which was referred to by Congressman Radanovich, right now the reluctance of a community to have any new generation can

create a situation with literally--you know, they have a problem there, but they have no option because they can't import any more electricity. There are communities that would like to increase the amount of generation they have, places perhaps where they already are a source, but if there is not enough transmission to get any additional electricity from there to a more grid-intensive area, they don't have that option.

Mr. JOHN. Well, being from Louisiana, I could sure understand that mentality, that we will drill as much as you want down at our end. We understand the jobs that are created.

Finally, let me briefly say that I look forward to working with you as we embark upon this issue. In my eyes, I do not believe that there is a more important issue facing this Congress, and it is not going to be solved this year or next year. There is no silver bullet. It is a myriad of things that have to be addressed in one package. I think it is a threat to our economy. It is a threat to our prosperity. I think it is a threat to our informational security. And it is something that we need to work on.

Being cochairman of the Blue Dogs, we have recognized that, and we have activated an energy task force, cochaired by our colleague Ralph Hall on the committee and also Max Sandlin, and we are putting together principles of an energy

policy. And we are going to invite you to one of our meetings. I think we will play a very important role in this, because it is a very important issue, and I look forward to working with you and thank you for being here.

Mr. WHITFIELD. [Presiding.] Mr. Secretary, I also want to welcome you to our panel this morning, and I was not here for the opening statements, but we are delighted that you are here. And I particularly am pleased that this administration is placing emphasis on all fuel sources, particularly the emphasis you are placing on clean coal technology, as well as expanding the use of nuclear fuels.

I would like to talk to you--ask a few questions just on a few parochial issues as well. As you may know, I represent the Paducah gaseous diffusion plant, and I was pleased that the administration is its budget had requested $18 million in a supplemental appropriation for environmental cleanup at the Paducah plant. And I know that you can't speak for what will happen here on the Hill, but it is my understanding that at least in you all's view, that the entire $18 million was to be set aside for the Paducah cleanup. Is that correct?

Secretary ABRAHAM. Yes. That is my understanding.

Mr. WHITFIELD. And then on another issue, I really appreciate the Department's continued efforts to move ahead with the DUF6 conversion plants at both Paducah and at Paducah--I mean, at Paducah and at Portsmouth. Those plants

and the construction are very important obviously in trying to convert the depleted uranium hexafluoride into a more stable product.

My understanding, the bids were submitted in March, and it was our hope that an award would be made no later than August. However, it is my understanding most recent estimates indicate that the DOE will not award the contract until about October. Is that your understanding at this point?

Secretary ABRAHAM. I would have to check to see if there is any updated information. I honestly can't tell you a date, but I know that our offices work with yours, and I suspect the information you have just indicated is something that reflects the most recent estimates on our part.

Mr. WHITFIELD. Okay. Good.

Also, I, along with Congressman Strickland of Portsmouth, had written a letter to you regarding the pension benefits for the employees at the--for contract employees at both Paducah and Portsmouth. Recently, the pension benefits for the contract employees at Oak Ridge had been increased significantly, and we have not been able to determine how those benefits would be increased, but the benefits at the Paducah and Portsmouth facilities would not have been increased, particularly with the large surplus in the pension fund. And I have talked to your staff some actually this

morning, and I know that they are going to be working on that. And I just wanted to say to you that it is a very important issue, and we appreciate you all taking the time to look into that and get back with us.

Secretary ABRAHAM. Well, we will, and I just would like to acknowledge the work you have done. We have worked with Congressman Strickland as well, as you have indicated he did in his opening statement, to try to address some of these issues within our complex. Obviously some of the employees are involved that work directly with the Department, but most don't. And we are trying to be responsive to their concerns, as expressed through you, and we will continue to work with you to accomplish that.

Mr. WHITFIELD. Thank you.

At the time USEC was privatized, they became the exclusive executive agent for the--implementing the Russian HEU agreement, and at this time the National Security Council is reviewing that entire agreement, and I know that you will be having input into that. And I would just like to make the comment that I think that you, SEC, has done a very good job as the agent for that agreement, and I--it is my hope that they would be able to maintain the exclusive agency responsibility in that. And I know that that is an ongoing process, and I simply just wanted to express my views on that. And, of course, as we move toward--I am assuming that

it is your view that we do need to always have a domestic capability to enrich uranium in the U.S. Do you agree with that?

Secretary ABRAHAM. Well, Congressman, one of the things which we are trying to evaluate in the early days of the new administration is precisely what general policies we are going to outline in these areas.

As you indicated, there is a national security review going on that embraces both the specific issues that relate to the USEC role and, more broadly, the HEU agreement as it pertains to nonproliferation, but also as to the national security implications both with regard to domestic production capabilities, as well as the capacity to import on a long-term basis. So that is all part of the review, and those are definitely considerations that will be taken into account.

Mr. WHITFIELD. Okay. Well, Mr. Secretary, I know that everyone on this committee does look forward to working with you as we try to solve this energy crisis in America and to utilize all fuels available to us. And I see that my time has about expired.

So has Mr. Waxman--okay. I will recognize Mr. Waxman of California for 5 minutes.

Mr. WAXMAN. Thank you very much, Mr. Chairman, and Mr. Secretary. I am pleased to have you here before us.

We want to work together with this administration, but the proposal that we have seen on energy just is so puzzling to me, because you would not get a tighter standard to make motor vehicles more cost-efficient, to get more fuel use more effectively with cars. You wouldn't get as tight a standard on air conditioning, which, if we had the standard that the last administration proposed, would have resulted in 43 fewer power plants from having to be built. We are not going to get other areas of conservation. But instead we are being told, well, we will just have to start drilling in the national Alaska wilderness area, open up all Federal lands.

We are getting some kinds of sources of energy that are being favored. We are getting a subsidy for coal. At the same time the administration is proposing a cutback on funds for renewables. And there is a 30 percent cut in the conservation fund, which is a fund that can be used to make greater efficiency use of electricity and other energy. So it is very troubling.

On the one hand, we are being told there is a crisis, let us drill, let's produce more energy, let us open up our natural resources. We are in a crisis so we need more supply. And yet we don't have the effective ways to use our energy more efficiently and to conserve.

How do you answer that?

Secretary ABRAHAM. Let me try to go through all of

those, if we can. First of all, let us just talk about energy efficiency and conservation. There is a major component of this proposal, an entire chapter devoted to recommendations in that area. It ranges from--on the one hand, to call for the expansion of combined heat and power program systems.

Mr. WAXMAN. Well, let me ask you about motor vehicles. That is one of the major sources of use of energy. You said in answer to a previous question that the proposal of this administration is to study tighter fuel efficiency standards. Yet the standards were adopted in the 1970s and implemented in the 1980s, and we are now in the 21st century. Don't we need tighter standards right now to put in place for future motor vehicles, particularly those SUVs?

Secretary ABRAHAM. I would note a couple things. First of all, we already have legislation in place that puts the Secretary of Transportation in charge of making these determinations, and I believe that is really what we have now urged happen. But just remember, of course, over the last several years, there has been a moratorium on funding to, in fact, make any changes with respect to--.

Mr. WAXMAN. Well, that is a moratorium the Republicans in the Congress supported--.

Secretary ABRAHAM. And it is also a moratorium that we do not call for in this plan. And indeed, I believe that the

House--.

Mr. WAXMAN. Well, because your plan--.

Secretary ABRAHAM. --appropriations subcommittee just this week has lifted that moratorium.

Mr. WAXMAN. I know there is no need for a moratorium, that the administration's proposal is to simply send it out for further study by the National Academy of Sciences.

Secretary ABRAHAM. No. That isn't the case, Congressman. I think that, quite the contrary, we envision in this moving forward on CAFE taking into account three factors that I think are important. One, the study which was a bipartisan compromise worked out last year to have the National Academy of Sciences--and I believe in a few weeks they will have their study completed--give us some recommendations that should be incorporated into the consideration and taking into account safety as well as potentially disparate impact on manufacturing.

If 46,000 Americans have died as a result of mandated CAFE standards over the last 20 years, we ought to be looking forward in terms of changing standards to make sure that we do so in a fashion that doesn't--.

Mr. WAXMAN. People have died because of CAFE standards?

Secretary ABRAHAM. That is exactly right.

Mr. WAXMAN. How is that happening?

Secretary ABRAHAM. Because we--.

Mr. WAXMAN. We have got more cars efficient now than they used to be.

Secretary ABRAHAM. They may be more efficient with respect to fuel, it doesn't necessarily mean they are safer. And the problem, I think, that the National Highway Transportation--.

Mr. WAXMAN. You are no longer the Senator from Michigan. You are the Secretary of Energy. That argument never stood the test of--.

Secretary ABRAHAM. I am equally interested in the safety of Americans in this job, and what I would say is that the National Highway Transportation Safety Commission has, in fact, found a direct correlation between the weight of vehicles and traffic fatalities that have ensued. It is not my numbers. It is the numbers of NHTSC. It is the calculation done by Gannett News Service, taking into account the data provided.

Now, the issue isn't whether or not we should improve CAFE standards. The question is can we do so without any resultant increase in the unsafety of vehicles. And I--.

Mr. WAXMAN. Well, Ford is talking about a vehicle, an SUV, in 3 years that will get 40 miles to the gallon. Do you think they are going to make one that is less safe than the SUVs on the road today?

Secretary ABRAHAM. I am confident they won't. And they

didn't need a government fuel efficiency standard to make it. The question is whether or not--what we are calling for is for the process to move ahead with the Secretary of Transportation, who has responsibility under the standards and the statutes in place today to make a decision.

Mr. WAXMAN. My only point is Ford says they have the technology. They can do it. That doesn't mean they will do it. And it seems to me if we want it done, and we want to get the automobile industry to act, we have got to set in place the requirements for them and push them to do it. That is how we got them to move forward on safety, on fuel emissions from automobiles that pollute the air, on greater efficiency. And what I see is this administration telling the automobile industry, don't worry about efficiency standards. We are going to send it to the National Academy of Sciences and study it for a couple more years.

Secretary ABRAHAM. Actually, that is wrong, Congressman. The Congress last year in a compromise on a bipartisan basis sent it to the National Academy of Sciences. Their study is due in a matter of weeks, and when it is done, it will be incorporated in the Transportation Department's statutorily required fuel efficiency determination process.

Mr. BARTON. Okay. The gentleman's time has expired.

The gentleman from Ohio Mr. Sawyer is recognized for 5 minutes.

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

Mr. Secretary, welcome again. I understand that in your answer to Congressman John, that you discussed in some degree or other the problems with transmission constraints and the need to put a more modern ratemaking structure in place to deal with transmission as a freestanding business enterprise, and you mentioned Federal siting authority. I am not going to ask you to elaborate on that at this point, but I will be interested in looking at your response to Congressman John.

Let me ask you, though, the whole question of RTO formation is proceeding today with large numbers of investor-owned utilities working to comply with the FERC Order 2000. Do you think that we should allow utilities to continue in their current progress toward RTO formations in the free market, or in the interest of avoiding the kinds of constraints that we have seen, formed in some places in the country, does there need to be a government role in mandating formation in identified places or forcing utilities to divest of transmission--.

Secretary ABRAHAM. One of the recommendations in ~~our~~ the President's plan ~~—in fact, the whole~~ as I pointed out to Congressman John, the whole chapter is devoted to the serious infrastructure problems that you identified in large measure in your opening statement. And within there ~~is both~~ a call for trying to address the reliability issues ~~with and~~

The problem that I see in the brief period of time I have been in this job is while we have a variety of, I think, 10 regional reliability associations or councils, ~~we don't~~ there is no teeth in there. There is no authority at FERC to enforce reliability measures so that people have some, shall we say, latitude in terms of how they behave. ~~At the same time~~ So we envision presenting legislation that would move in the direction of a national reliability council with real enforcement capabilities as one leg of the puzzle or the stool.

Second, we don't make a specific recommendation towards a mandatory RTO approach. However, I in a letter to FERC, encouraged with respect to western RTO, the inclusion of the Bonneville Power Administration because we felt there would be a benefit from having that process in the Western States. And we see that as a promising way to address some of these transmission issues.

One of the most important assignments I have received as part of the National Energy Plan is the ~~required or the~~ requirement by the end of this year for us to make a national assessment of where bottlenecks exist, to where interconnectivity is required to try to address the national highway system you suggested in your comments. How we get from that completed project to the building and constructing of that is, I think, dependent on, one, a rate structure that

incentivizes construction on the one hand and the ability, at least as a matter of last resort, if not otherwise, of the Federal Government to play a role in siting where we have an unwillingness on the part of State and local officials to do so.

My hope is once we identify problem areas, perhaps that will bring some focus on them and cause regulators to make those decisions. But we believe that there needs to be ultimately a Federal role, if necessary.

Mr. SAWYER. Thank you very much.

Thank you, Mr. Chairman.

Mr. BARTON. The gentlelady from Missouri is recognized for 5 minutes.

Ms. MCCARTHY. Thank you very much, Mr. Chairman, and thank you, Mr. Secretary. I know in my opening statement, opening remarks, I posed some thoughts to you, which I am happy to have you get back to me on, budget items.

I want to pursue in this 5-minute window issues that Mr. Whitfield and Mr. Barton both raised, and that is with regard to the study, that strategic review, that is to be completed September 1st. And in your remarks you talk about how important it is to maintaining energy security with regard to current and future technologies. I couldn't agree with you more.

But I want to have you elaborate a little bit on what you

will do following that study, even though we don't necessarily know fully what we will find in the study. But I am concerned because in the budget process, which we are underway with here in the Congress, there are some cuts being made, in particular to the National Renewable Energy Lab in Colorado. It is managed by Midwest Research Institute in my district, and I have spoken to the director at length about this, because I believe very much in our energy labs and what they are trying to accomplish and that they are, in fact, key to our future energy security. But the cuts--the lab itself is going to receive about a million dollars increase in equipment, maintenance and repairs, but the research activities are said to take about 195- to 199 million cut in 2001 and another 140 million in 2002.

Will your strategic review be looking at the consequences of those cuts? And what I think personally is that they are very untimely, given the commitment we all seem to share in a bipartisan way here today for, you know, energy security, next-generation technologies, you know, elaborating on what those technologies mean.

You and I both know if you set research back for 3 years or more, you can't just recoup when you finally find some more money. You can't--you just can't pick them up where you left them, and we are--at least in this lab I am familiar with--so close to the technologies that we need--we need to

use, we need to export, we need for economic development and energy security and national security. I really think it would be impossible to resume in the future, and it would be a huge loss for us right now.

So this report that is to be completed by September 1, based on your review of it, will you then rethink some of the budget items that have not been addressed, you know, and make recommendations to the appropriators?

Secretary ABRAHAM. Mr. Chairman, if I might ask, this is an issue brought up by so many Members, I would like to just kind of give a very comprehensive response--I will do it as quickly as I can--~~response, but it does~~--there were so many components with respect to the renewable energy budget.

Our budget, if you eliminate congressionally directed projects in the renewable energy area from last year's budget, is about $60 million less than had been in the 2001 final level of appropriations.

The time frame in which we developed this budget was almost immediate with respect to our arrival in office, and it was not a budget that we had the ability to draw conclusions from the National Energy Plan development, because the budget had to be completed by February 27th, and all the details by April the 9th, and the energy plan wasn't finished until May the 17th. As a consequence, it put us in a somewhat difficult position within a variety of the budget

categories to try to establish priorities.

What we decided to do in this area was to try to identify programs where we saw a clear need for maintaining level funding from previous years, and we did that with respect to hydrogen, with respect to superconductivity, with respect to other areas within the renewable budget, and to retain the core competencies, although at a reduced level, o[illegible]al other areas, pending guidance from the National Energy Plan, which we have now received.

If you will look at the National Energy Plan, it gives me explicit authority to begin immediately working on a review of both the renewables areas, as well as some of the other areas in the fossil energy that are somewhat combined for the purposes of making new budgetary recommendations.

Now, the study that I have mentioned actually has two phases to it. The first phase has begun. In fact, our newly installed Assistant Secretary for Energy Efficiency and Renewable Energy, David Garman, is already on the road, having public hearings ~~at~~ on a regional basis. The first phase of the study will be done on July the 10th, and the purpose of having phase 1 was to put us in a position to make recommendations that would apply to the 2002 budget levels. The final project will be completed on September 1st, and I would envision that providing us with guidance as we work into the 2003 budget that will be forthcoming ~~obviously~~

~~essentially~~ next year, although that process within the executive branch is already under way.

I would note for the record, though, that one thing about renewable energy that I hope we can all work together to take into account is that a lot of the research in some of the major areas, particularly wind, geothermal and solar, is very mature. Our Department has spent--we have calculated almost $6 billion in current dollar terms over the last 20 years on research in these areas, and yet today the contribution to America's total energy supply in those three areas is less than 1 percent. And, in fact, when our Energy Information Administration was asked to estimate what the contribution level would be in 20 years down the road, it was only a little bit more than 1 percent. Now, I don't think any of us want that to be the case.

It seems to me the challenge we have is not only on the research side, but also on the implementation side, and one of the things I have also asked our division, our Energy Efficiency/Renewable Energy Division, to do is to look at and give us recommendations which will have to assure us of steps that ought to be taken to translate into using technologies that have already been largely invested in.

In the budget we have some--or rather in the energy plan, we have some recommendations with respect to tax incentives. For example, expanding the solar energy tax credit to

residential as well as commercial applications; an expansion also with respect to biomass; and some others, fuel cell vehicles.

But I think there are other factors involved as well. We have some siting problems that are regulatory in nature rather than research-related with regard to, for example, wind energy farms, because people may not want to have that in some particular part of their State or community. We have, I think, some problems with respect to the uncertainty of some of these tax incentives that have been only put in place in the past for a short duration, and, therefore, it has caused people to not be certain about whether or not there is going to be that available in the future.

We have pricing issues that I think need to be addressed. For example, when you are using solar energy, there are periods when, in fact, you are a net energy generator. You are generating more in the heat of the day than you are using. If we can incentivize or provide people who might use a solar system the opportunity to benefit at those times through net metering, which is available in some places, I think that can cause an expansion of that particular renewable.

And so I think we have got to look at this both on the research side, but also on the application side, or else that 1 percent for those three sources will be the final number,

and I don't think any of us want that to be.

Ms. MCCARTHY. Mr. Chairman, since he is addressing his answer to the many Members who had raised the issue, may I pursue briefly?

Mr. BARTON. You can ask one more question, and then we go to Mr. Dingell, and we will go to Mr. Walden.

Ms. MCCARTHY. Thank you, Mr. Chairman.

I thank you, Mr. Secretary, and I do hope that the study provides you with the impetus I think we all feel we need to make these other forms of energy competitive and available. We can look to our European friends for help there as well, since they are ahead of the curve on these matters, having had high energy costs far longer than we have.

I wanted to comment or ask your thoughts on revisiting the CAFE standards issue that both the Chairman and others have brought up. I am concerned because this committee has taken a look at SUVs and, you know, the danger in them, the design, and perhaps the tire issue. We have taken a good look at that. Are you suggesting there are some--that there are some data available that shows that the deaths due to CAFE standards somehow relate to SUVs, because it was my understanding that SUVs were exempt from those standards?

And secondly, what is wrong with the Secretary of Transportation and you collaboratively calling on the industry to become more efficient, give them a goal of a mile

per gallon per year over the next decade and call upon them voluntarily to meet that goal for energy security and national security, and just send a message that this is what the administration would like to see happen, all the while you are pursuing other studies on just what we can accomplish. I would like your thoughts on both, please.

Secretary ABRAHAM. Let me say with respect to the safety issue, as we address fuel efficiency, I think it is imperative that we also consider safety implications. For those of us who have, you know, looked at these previous studies, what we see is that when fuel efficiency standards ~~cause product~~ came into effect, one of the ways that people met the higher standard--one way that manufacturers can meet a higher standard of fuel efficiency is to make a vehicle lighter.

Now, if a vehicle is lighter, NHTSA has concluded that there is a correlation to more serious accident ramifications, and so I want to make sure that if we do change CAFE standards, that we take that into account and try to make sure the changes aren't ones that bring about any unique consequences on a safety front.

In terms of the industry, you know, first, I think we need to execute the already existing statutory requirements that are in place today, which call upon the Secretary of Transportation to on a--I think it is on an annual basis to,

in fact, make recommendations with respect to fuel efficiency. Those have been--those have been basically stopped because of the moratorium on funding, but I believe that from what I gather, the moratorium is not likely to be--the ban or whatever is not going to be in this year's appropriations. At least it doesn't seem to be at this point on the House side.

Ms. MCCARTHY. Mr. Secretary, if I might speak from my heart, since I arrived here in 1995, the auto industry has been all over me to support legislation, to deny those CAFE standard changes. I think that it has stopped not because of budget issues, but because of politics, and I think that is why I suggested that you and the Secretary of Transportation call on the industry to be a partner in this instead of trying to politically keep it from happening.

Secretary ABRAHAM. Well, my point was only that the appropriation process has prevented the Transportation Department from taking the action that is otherwise statutorily called upon. I do believe the point you made with respect--or perhaps it was Congressman Waxman made with regard to industry now moving forward to actually have on the road more fuel-efficient SUVs even sooner than a time frame likely would be mandated is a step in a very positive direction, and I think we would encourage that. And I hope that we will see the entire industry move in that direction,

but do so in a safe way, do so in a way that doesn't have a disproportionate impact on whether it is American workers' jobs that are also affected.

Ms. MCCARTHY. Well, it is probably very appropriate that the President is in Europe this week, because he will see a whole lot of fuel-efficient cars, and perhaps his staff can gather some of the data on the hazards and dangers of those.

But, again, thank you, Mr. Chairman, for your indulgence in this time, and I yield back.

Mr. BARTON. Thank you.

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

Mr. DINGELL. Mr. Chairman, I thank you for your courtesy.

Mr. Secretary, these are friendly questions, and I think they will be susceptible of yes or no answers, and in view of the time limit, I hope you will be able to give me that yes or no.

Secretary ABRAHAM. Well, I am very hesitant to say no, I am sure.

Mr. DINGELL. In response to my May 14 letter on various waste issues, you attached a chart, indicating the program would experience a funding shortfall in fiscal year 2002. If I read this correctly, I would say that it tells me that you will fall nearly $6 billion short between fiscal year 2002

and the repository opening of 2010. Is that correct, Mr. Secretary?

Secretary ABRAHAM. We believe--I am sorry. I can't answer that issue yes or no. We believe that we will have a funding path towards a 2010 completion, assuming that--.

Mr. DINGELL. But the chart says you will have a shortfall.

Secretary ABRAHAM. We are committed--.

Mr. DINGELL. It is your chart, Mr. Secretary.

Secretary ABRAHAM. Congressman, we are committed to moving forward to request adequate funding to meet the construction of--.

Mr. DINGELL. I want to address--.

Secretary ABRAHAM. --if we, in fact, feel we can make the recommendation.

Mr. BARTON. Will the gentleman from Michigan yield, and we will give you additional time, because I want to back you up on this.

Mr. DINGELL. Well, I will be happy to yield to the Chair then.

Mr. BARTON. Would the Secretary be willing to work in a bipartisan fashion with Congressman Dingell and myself and Mr. Tauzin and others to use a nuclear waste fund for the purpose which it was intended, which would mean in real language that we have to remove that budgetary cap that was

imposed, I think, 6 or 7 years ago?

Secretary ABRAHAM. Mr. Chairman and Mr. Dingell--.

Mr. BARTON. Because that is what Mr. Dingell is getting at. His committee did that in our nuclear waste bill in the last Congress.

Secretary ABRAHAM. It would be my view that those funds which were contributed by ratepayers through their companies should be used for exactly those purposes.

Mr. BARTON. Thank you.

Mr. DINGELL. Now, if we don't do something about this, the administration has to do something like putting it off budget, because there are nearly $10 billion in unexpended ratepayers' monies that are supposed to be spent for the waste repositories Congress intended. Will you send legislation up to take this waste fund off budget?

Secretary ABRAHAM. We have begun discussions with the Office of Management and Budget to try to address how this can be done. We actually began those discussions in this year's budget period, but we did not have sufficient time to complete them. But I have been working with Director Daniels to try to move in a direction that would provide some sort of methodology for us to have access to those dollars.

Mr. DINGELL. You are now being sued for failure to proceed by the electrical utility industry, and it is my personal judgment you will lose all of those lawsuits, Mr.

3012 Secretary. When you lose, what are you going to do?
3013 Secretary ABRAHAM. First, let me just say when the
3014 Chairman asked me earlier what were the pleasant surprises of
3015 this new job, he didn't ask what the unpleasant ones were,
3016 and one of them was that I have been sued more--.
3017 Mr. DINGELL. Your unpleasant surprises are without
3018 limit.
3019 Mr. BARTON. It was a holdover suit. It is not you
3020 personally.
3021 Secretary ABRAHAM. For one, I have been sued more that I
3022 ever had planned to be in my life; and second, I would just
3023 say that the Ranking Member had warned me about virtually all
3024 of these matters before I took the job, so I was on notice.
3025 But obviously we believe that as the first step in the
3026 process, we need to address the issue that pertains to a site
3027 characterization and recommendation. Whether or not I can
3028 make that recommendation will be based on sound science. I
3029 believe if we begin moving forward, if the conclusions that
3030 we reach after getting the science are that we can make a
3031 recommendation to the President to seek license--a license to
3032 go forward with the Nevada site, that that will have a
3033 profound influence on a number of these issues, including the
3034 nature of lawsuits in the future.
3035 Mr. DINGELL. Now, Mr. Secretary, I would note that EPA
3036 has issued standards for protecting public health and the

environment at Yucca Mountain. If it proves scientifically suitable, can you meet the environmental standards that have been described to you or for you by EPA?

Secretary ABRAHAM. Congressman, our--the process that I intend to go through once the site characterization science is presented to me will be aimed at determining not only whether or not to make the recommendation, but whether or not, in fact, we can meet the standards that are set. We accept these as very stringent, tough standards. There is no question that they are. I will certainly make the determination based on my evaluation of those standards against the science that we receive. I believe that it is feasible for us to meet those standards based on at least my preliminary examination of them, but I don't feel I should rush to judgment until I have actually received the site characterization information.

Mr. DINGELL. Statutory standards on this point?

Secretary ABRAHAM. I am sorry?

Mr. DINGELL. Will the Congress have to enact statutory standards on this point because of the inability to meet the standards or to--or to proceed under the standards of the Department because of technical difficulties in doing so?

Secretary ABRAHAM. At this point, I mean, there is no question, Congressman, that the standards that EPA has set are ones that go beyond either what the National Academy of

Sciences or the Nuclear Regulatory Commission had established or suggested. They are very stringent tests, and certainly our capacity to meet them would--I would hope--resolve any issues with respect to safety and environmental implications of the site.

I don't at this point have a recommendation for legislation.

Mr. DINGELL. So you can't answer yes or no.

Now, Mr. Secretary, are you using your authority under section 403 of the DOE Reorganization Act to propose a rule which FERC would provide relief for--under which price relief would be provided for California by FERC?

Secretary ABRAHAM. No.

Mr. DINGELL. No.

Do you plan to send up a comprehensive electric restructuring bill?

Secretary ABRAHAM. We have been asked as a part of the President's energy plan to do so. The answer is yes. We have not begun the actual development of that legislation, because it is--one of our goals is to work with the committee and with counterparts on the Senate side as we determine the approaches that would be receptive here.

Mr. DINGELL. The plan also recommends legislation, quote, clarifying Federal and State regulatory jurisdictions. I would note that consensus on this has proved impossible.

Can you tell me whether your bill would preempt State jurisdiction on transmission matters if you send such legislation up here?

Secretary ABRAHAM. I am not sure that it would be contained in the same legislation that would deal with electricity restructuring, but as I said in the answers to questions from Congressman Sawyer and Congressman John, we believe that there are an enormous number of bottlenecks that exist in this country where transmission siting is desperately needed. We have no Federal authority to do so. I would--our first step in the process is going to be to try to evaluate where exactly the most significant needs exist for either additional transmission or interconnectivity. On the basis of that type of an evaluation, we also hope to present legislation that would, in fact, provide the Federal Government with some eminent domain authority to try to address these problems, although, as I said in my earlier comments, I would hope that would be only in a last resort rather than as a first impression.

Mr. DINGELL. Would you give this authority to FERC, which has done an abominable job of implementing current law, or would you vest that authority in someone else?

Secretary ABRAHAM. We have not made a determination.

Mr. DINGELL. The plan also advocates repealing the Public Utility Holding Company Act of 1935. Would you

support consideration of this issue as a part of a comprehensive bill, or do you favor PUHCA repeal on a stand-alone basis?

Secretary ABRAHAM. We support PUHCA repeal. The President indicated that in his campaign, and it is part of his platform. We have not made a determination as to whether or not to include it in--it would be certainly in the legislation we intend to draft, but I understand that in the Banking Committee of the Senate, it has moved forward as a freestanding vehicle, and I guess it is our intent to try to work with Congress to determine what the most effective way would be to accomplish that objective.

Mr. DINGELL. Now, I would note--.

Mr. BARTON. This is going to have to be the gentleman's last question.

Mr. DINGELL. And I thank you, Mr. Chairman. You have been very courteous, and I appreciate your kindness.

I would note that FERC concludes that market power is being exercised or actually abused in California's wholesale markets. Is this a good time to have PUHCA repeal in view of that, because PUHCA has a number of consumer protection provisions in there which apparently need somebody other than FERC to address?

Secretary ABRAHAM. Well, we still support the position with respect to PUHCA repeal. I would say that--and would

note for the record that it is only since February of this year that we have actually addressed the issues of unjust and unreasonable prices in California with calls for refunds that have now totalled some $124 million to those people who have been forced to pay these unjust and unreasonable rates.

I think that--and the administration supports FERC's taking its responsibility seriously to, in fact, call for such refunds, and I would urge them to continue to vigilantly pursue that.

Mr. DINGELL. Thank you, Mr. Chairman. I appreciate your patience.

Mr. BARTON. Thank you.

We are going to recognize Chairman Tauzin. The Chair is going to announce that Mr. Walden, Mr. Doyle, Mr. Luther and Mr. Strickland, have you asked questions yet? All of the Members who are present at 1 p.m. will be given 5 minutes of oral questions. Any Member that arrives after 1 p.m. will put their questions into the record, because the Secretary does have a 1 p.m. appointment. So we are probably going to end up here till about 1:30.

With that, Mr. Tauzin, the full committee Chairman, is recognized.

Mr. TAUZIN. Thank you, Mr. Chairman.

Mr. Secretary, let me first remind you something you may not be aware of. One of the first bills I introduced upon my

entry to this Congress was to repeal PUHCA back in the early 1980s, and the reason then is still the reason now. It is an outdated piece of legislation that inhibits some utility companies, and only some utility companies, from making efficiency investments that are critical to their consumers, and I include in that energy carburetion, which is one of the carburetions that serves the utility consumers of my district who are restricted in their capacity to make necessary efficiency investments. We are not living in the 1930s and 1935, 1940s when that sort of legislation made some sense. Today it doesn't make sense in a marketplace of competition, and I would encourage the administration to stick with that position, and hopefully we can get it done one day.

I want to talk to you a little bit about some of the plans we have in the committee and get your thoughts on it. First of all, we have focused on the higher-than-necessary gasoline prices in our marketplace that consumers are having to deal with. And as part of our plans we hope to address very early what we consider to be an element of a marketplace that is unnecessarily raising gasoline prices for people, and that is the extraordinary number of blends and different blends and seasonal blends of boutique fuels in our country. And we would very much like to introduce and hopefully pass legislation somewhat standardizing that process so that if SIPs clean air requirements of the various communities do

require some boutique fuel to help in the air cleanup, that they might--they might have a single or several boutique fuels to choose from, rather than as many grades and varieties, and, secondly, that there might be some easy way to go from winter to summer blends without emptying the tanks one day and having to fill them up the next day and having consumers face empty fuel tanks when they go to the marketplace.

Does your Department agree with us that that is an area we ought to address sooner than later?

Secretary ABRAHAM. Well, I think it needs to be addressed, and I would note that in the President's plan, the Environmental Protection Agency Administrator has asked to address it. We have talked before about the refinery capacity limitations that we have as a Nation, the fact that no new refinery has been built in 25 years, the last one down in your district.

Mr. TAUZIN. You visited it--.

Secretary ABRAHAM. Which we visited the other day.

Mr. TAUZIN. Thanks for going there.

Secretary ABRAHAM. The problems of strained capacity are obviously exacerbated to the extent that refineries have to produce all these, ~~you know~~, multiplicity of fuels. But the problem, of course, is that if you have a problem--which we did in Michigan last summer when a pipeline near Jackson

burst. A neighbor can't borrow from a neighbor, and a refinery doesn't have the ability to adjust because of these kinds of challenges. So we do support moving--.

Mr. TAUZIN. In fact, Daniel Yergen called it the Balkanization of the American fuel marketplace, because when somebody runs short, a pipeline breaks or a refinery is down or a ship has a collision in a harbor, we automatically have shortages and spikes like we saw in Chicago and Milwaukee last year, and that some rationalization of that marketplace would make a lot of sense right now. And we are going to try to do that. We would ask your support in finding the right formula that gets us there.

Secretary ABRAHAM. Well, there is no question there is a market liquidity problem.

Mr. TAUZIN. The second thing is there has been a lot of political discussion about whether or not this administration and this Congress is going to support a very deep and broad conservation effort as part of the energy package. Obviously you heard the Chairman of the subcommittee announce that we intended to make it one of the very first things we do in this committee. The secretary of natural resources in Louisiana, when asked to comment to the administration on our recommendations to the national policy, led off with conservation, with the argument that every Btu of energy conserved is one you don't have to repeat in production over

time, and that we ought to move to see as much demand reduction as we can get in a marketplace. Do you concur with that kind of a strategy?

Secretary ABRAHAM. Yes, I do, and as you and I have spoken, there is the issue of waste as a consequence of some of these reliability issues. ~~Some of the--one of the reasons~~ One of the recommendations in our--in our plan has the Department of Energy moving immediately to consider expansion, for instance, in research in areas like superconductivity, where we believe that conservation achievements are most realized.

Mr. TAUZIN. In fact, we saw that in Detroit. One of the electric companies is now deploying superconductive--so they are here already. We know some of those advances are here. I am going to see a demonstration later today from Sandia Labs on a 3-year project that really facilitates net metering where consumers can put up solar panels and actually sell electricity back to the grid when they are not using it instead of trying to store it in batteries. All of that makes great sense, and our thought is that we ought to move first with a package that literally brings together as many good ideas on demand reduction and assistance to energy supplies through conservation and demand reduction and alternatives as a lead item in the package, and then follow it with what else we have to do in all the other more

difficult areas to get agreement on nuclear and other fuel production, including hopefully a clean coal technology bill.

Again, do you endorse that strategy? Do you feel like you can work with us on that kind of a plan?

Secretary ABRAHAM. It is for sure that we can, and I would actually say that as a personal matter--I can't speak for the White House on this, I haven't consulted with them, but I think moving forward in the direction you have just outlined as a first step would certainly be a wise course for the committee to follow. There is a lot of common ground--.

Mr. BARTON. This will have to be the Chairman's last question.

Mr. TAUZIN. I will not have another question. I simply wanted to thank you again. I know this is your first appearance on this side, and we deeply appreciate the time you spent with us, Mr. Secretary. We will spend an awful lot more time together as the months go by.

Secretary ABRAHAM. Thank you. I will look forward to being back.

Mr. BARTON. I thank the Chairman.

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

Mr. DOYLE. Thank you, Mr. Chairman.

Mr. Secretary, welcome. I have several questions. I think what I would like to do is maybe just get them all