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PROPOSED BUDGET FOR FISCAL YEAR 2008 FOR THE DEPARTMENT OF ENERGY

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

TO

RECEIVE TESTIMONY ON THE PRESIDENT'S PROPOSED FY 2008 BUDGET FOR THE DEPARTMENT OF ENERGY

FEBRUARY 7, 2007

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PROPOSED BUDGET FOR FISCAL YEAR 2008 FOR THE DEPARTMENT OF ENERGY

WEDNESDAY, FEBRUARY 7, 2007

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 9:40 a.m., in room SD–366, Dirksen Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. Why don't we go ahead and get started?

Thank you very much, Mr. Secretary, for being here, we appreciate it. Let me compliment you and your staff for bringing the Department's budget material to the Congress in a timely fashion, an organized fashion. We appreciate that.

Today's hearing will examine the fiscal year 2008 Department of Energy budget proposal. There are obviously many good elements in there, such as the strong commitment to the Office of Science, to keep our Nation globally competitive, commitment to bio-fuels and solar energy research in order to diversify our energy portfolio. There are some proposals that I think we need to spend additional time on, here in this committee, to understand them. One, of course, I've indicated before, is the Global Nuclear Energy Partnership, and I may have a question on funding there.

The administration has also proposed doubling the capacity of the Strategic Petroleum Reserve; I've got some concerns about the priority of that at this point, and obviously there are some issues related to the implementation of the Energy Bill that we passed in 2005, which we're anxious to ask some questions on, as well.

But let me defer to Senator Domenici, and any comments he has, and then we'll hear your statement, Mr. Secretary.

[The prepared statements of Senators Sanders, Murkowski, and Smith follow:]

PREPARED STATEMENT OF HON. BERNARD SANDERS, U.S. SENATOR FROM VERMONT

Chairman Bingaman, Ranking Member Domenici, submission of any Administration's budget to Congress represents the beginning of one of our most fundamental responsibilities—determining how the taxpayer dollars will be spent. A budget speaks to the priorities of our country and fortunately, we have the opportunity—really the responsibility—to put forward a budget that will better reflect the needs of the American public than does the budget our President just submitted.

We all know that the President's budget puts forward his policy wish-list, all cloaked in budget gimmicks, and this year there were some real doozies. When it comes to energy policy, my favorite is that the President still has us opening up the Arctic National Wildlife Refuge for oil and gas drilling. If he doesn't know to focus on other issues, someone should fill him in.

It is time to truly commit to funding those energy programs that will help us transition to a green economy, for the threat of global warming demands nothing less. While there was some positive movement in this regard in the budget, it was not nearly enough. I appreciate the Committee holding today's hearing, which will help us to better understand the Administration's proposal. Additionally, I look forward to working with my colleagues over the coming months to make significant improvements to the Department of Energy's budget for 2008.

PREPARED STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR FROM ALASKA

Mr. Secretary let me start out by saying there is much in this budget that I support and I thank you for many of the spending choices you have made. I know this is a tight budget year and you had to make difficult choices given the narrow latitude that OMB undoubtedly gave you in overall funding. But I believe the Department is ignoring some exciting energy research and development possibilities in both the renewables and fossil fuel areas.

Just last month a Department study showed that geothermal energy from granite could produce 10% of the nation's energy needs by 2050. Another study recently identified 150,000 megawatts of near-term geothermal energy in the West that is uptapped. In my home state of Alaska, the Department last year had a major success in helping fund the first low-temperature geothermal project at Chena Hot Spring. We thank you for the tiny $1.5 million grant that made that success possible. But there is no geothermal money to follow up on that success by scaling up the low-temperature compressors to larger power outputs, or perhaps to use the same technology to tap biomass potential (although there is an increase in the biomass budget).

There is no money for small hydro development, and none for ocean energy, although there are exciting examples of new wave, tidal and current technology on the drawingboards, just needing federal demonstration grant assistance to prove its commercial applicability. Look at the East River project in New York. Just last month there was a report that ocean energy has the conservative potential to supply 252 million megawatts of power—6.5% of the nation's total energy needs—if it can just be helped over the hump to economic commercialization.

In small hydroelectric, including low-head hydro, there is a tremendous possibility for increased renewable energy production, if there were additional federal assistance, especially an expansion of the Production Tax Credit to cover more forms of small hydroelectric than just small irrigation hydro projects.

Even though the Energy Policy Act of 2005 that I worked on with Sen. Akaka authorized continued funding for methane gas hydrates research—supposedly $30 million in FY '08—there is no funding in your budget for it. Methane hydrate work was not just a "congressional add on" but was clearly supported by the Department as an existing research subject just two years ago—this nation probably having enough hydrates to fund its energy needs for 1,000 years, if the technical and environmental challenges can be overcome.

I wonder whether there is still funding in the Office of Fossil Fuels for heavy oil research. Alaska knows we have vast heavy, viscous oil deposits at Prudhoe Bay, but even at today's high prices we could use some additional federal research to help perfect better find ways to produce that oil economically.

You are proposing an increase in funding for carbon sequestration demonstration projects, which I support. But in the Energy Policy Act of '05 we specifically listed the Williston Basin in the Dakotas and Cook Inlet in Alaska as two places we requested you do demonstration projects, to show the feasibility of carbon sequestration as part of an enhanced oil recovery project in certain geologic types of oil fields. That would have both taken carbon out of the atmosphere and helped increase oil recovery, perhaps to the tune of 670 million barrels of oil in Cook Inlet alone, according to one of the Department's own studies. But when you issued the first grant you ignored congressional intent and awarded elsewhere. That I can live with, but it does make me wonder about the project rating process followed at the National Energy Technology Laboratory since the Alaska project was considered very sound by industry, itself.

And in EPACT '05 we included Title V, Indian energy assistance to help Natives and tribes develop energy resources on their lands. You still have shown no interest in even starting to fund that section of the bill.

And in a purely parochial matter, the Department over the past six years has operated an Alaska Energy Office. It has never received more than $7 million annually, but it has worked on some exciting projects: how to supply rural villages with innovative power in places where diesel-generated power costs up to 70 cents per kilowatt. How to harness coal while sequestering carbon and enhancing oil recovery from oil fields. How to turn coal into nitrogen and other elements through gasification. How to get heavy oil out of the ground. How to develop gas hydrates without unlocking vast amounts of greenhouse gases. How, most recently, to get power to the citizens of Southcentral Alaska now that existing supplies of natural gas are becoming more scarce and expensive. These are not just important questions for Alaska, but for the nation's energy future. I do wish the department was able to support funding for the office since, even facing bureaucratic struggles, it has done exceptional work during its short life.

Energy is the lifeblood of my state. Energy production is our leading economic engine and also one of our leading costs. Alaskans on average pay 50% more for electricity than the national average. I would hope the Department would continue both renewable, alternative and fossil fuel research that could help to end that competitive disadvantage.

PREPARED STATEMENT OF HON. GORDON H. SMITH, U.S. SENATOR FROM OREGON

Mr. Chairman, I appreciate your convening this hearing on the Department of Energy's fiscal year 2008 budget request. I also want to welcome Secretary Bodman here today.

Unfortunately, the members from the Pacific Northwest are once again confronting the latest in a string of proposals from the Office of Management and Budget that would raise electricity rates in the Pacific Northwest. This latest proposal, which mandates that BPA's secondary revenues in excess of $500 million annually would be used to prepay debt, is nothing more than a rate increase in disguise.

Despite language in the budget that talks about engaging the region in a dialogue on this proposal, it is clear that OMB expects BPA to implement this prepayment arrangement, and has built revenues into the budget assumptions from this proposal beginning in fiscal year 2008. While the numbers are difficult to discern in the budget documents, it is my understanding that OMB expects over $646 million in additional Treasury receipts over five years as a result of this prepayment requirement.

I remain opposed to this requirement to pre-pay debt, which is bad public policy for numerous reasons. Northwest residents are still paying for the west coast energy crisis of 2000–2001. BPA's rates today are already about 45 percent higher than they were in 2000, as a result of huge price spikes during the crisis.

While the economy of the Northwest has rebounded from the recession of 2000–2001, the unemployment rate in Oregon remains above the national average. Even with these regional economic challenges, BPA has made its treasury payments, and has actually prepaid over $1.8 billion in Treasury debt over the last six years. The difference is that rates were not raised to achieve these prepayments arbitrarily.

I have been working with my colleagues for several years now to reduce BPA's operating costs, and to bring rate relief to BPA's customers. This proposal would negate all of those efforts to bring down retail rates and retain energy-intensive industries in the Northwest. A preliminary analysis by BPA customers indicates that this will result in rate increases between 5.5 and 11 percent.

This proposal, which OMB claims can be done administratively, is inconsistent with congressional directives for the treatment of revenues and the rate setting requirements in BPA's governing statutes. Under the Transmission System Act of 1974, the BPA Administrator is to set rates at the lowest possible rates to consumers consistent with sound business principles. Also, rates are to be set in the aggregate with all other revenues of the Administrator to pay when due the bonds issued by the federal Treasury.

Earmarking a portion of BPA's revenues sets a bad precedent, and fails to take into consideration ongoing uncertainties surrounding river operations for fish, the appropriate level of carry-over reserves, or BPA's ability to meet its scheduled Treasury payments. This year, the proposal is for revenues from surplus sales over $500 million. What's to keep that number from being lowered in future budgets?

As a self-financing agency, BPA must be able to consider all its revenues when setting rates and establishing its Treasury repayment probability. It must also have

the flexibility to respond to operating mandates and market conditions over time. I am concerned about the impact of this proposal on BPA's reserves. During the energy crisis, BPA used over $600 million in reserves to buy power to meet its contractual obligations.

Finally, from a nationwide perspective, it is my view that the Administration should be attempting to lower electricity and other energy costs across the nation, not to raise them. As U.S. companies struggle to compete in a global economy, they are already hampered by rising electricity prices and natural gas prices that are the highest in the industrialized world.

This proposal sends a terrible message to energy-intensive industries. In essence, the federal government would rather wring more money out of ratepayers for deficit reduction than pursue lower energy rates that would help keep U.S. businesses competitive.

I do want to express my appreciation to the Administration for its decision not to continue pursuing legislation that would require third-party financing arrangements to be counted against BPA's statutory debt ceiling. That will help ensure that BPA can use these financing arrangements to maximize its statutory debt and to provide for needed transmission upgrades.

Another aspect of the Department's proposed budget that is of great concern to me is the lack of any funding for wave and tidal energy technologies under the renewable energy budget. I support the technologies that are scheduled to receive funding, including biomass, solar, wind, geothermal and hydropower. However, I believe the Department is ignoring the growing interest in wave energy, particularly on the contiguous West Coast, Alaska and Hawaii.

These innovative technologies are renewable, non-emitting resources that can help meet our nation's growing demand for electricity. In Oregon, it would be possible to produce and transmit over two hundred megawatts of wave energy without any upgrades to the existing transmission system on the coast. Already a number of preliminary permits have been filed at the Federal Energy Regulatory Commission for wave energy facilities off the Oregon coast.

These facilities would be virtually invisible from shore, and could provide predictable generation that could be easily integrated with other electricity resources. In addition, according to a January 2005 report issued by the Electric Power Research Institute, "with proper siting, converting ocean wave energy to electricity is believed to be one of the most environmentally benign ways to generate electricity."

As with many emerging renewable technologies, wave and tidal energy are more costly than traditional generation using fossil fuels. Yet, for our environment and our energy security, we must provide incentives that will encourage the development and commercialization of these resources.

I look forward to hearing testimony, Mr. Secretary.

STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Senator DOMENICI. Senator Bingaman, Mr. Chairman, first I apologize for being late and coming in the back door. I thought I would come in and catch the Secretary in the back, since you and I have been trying to get him to change a few things, I thought it might be easier to do it that way, but he didn't budge. Right, slipping up on his back side, but it didn't work.

Again, Mr. Secretary, I want to thank you for coming to the committee. I'm very pleased that the 2008 budget continues to focus on energy security and our investment in science and innovation. Obviously, there are some holes, as there will be, and as we work through the year, we'll try to fill some and you'll try to think that you've done it better, but if we continue to work together, we'll come out with a pretty good year, I think.

This budget also increases funding for many of the programs in the Energy Policy Act of 2005. I'm just sure that implementing the environmental and the Energy Policy Act is the most significant near-term step that we can take in strengthening our Nation's energy security. Every time we turn around, there is somebody telling

us that they're glad we did something in that Energy Act that is moving us in the right direction.

This work is essential, and I'm committed to working with you to provide the resources necessary to fully implement that Act.

I do, however, have a major concern with this budget and its impact on the National Laboratories in our home State. I'm troubled by the reduction in funding for the NNSA weapons program, and all the NNSA labs and overall weapons funding will go down at Los Alamos, by about 6 percent, and Sandia by about 8. Those numbers are troubling to me, because as you know, I've fought to integrate the Nation's weapons labs and science infrastructure into a more cohesive research unit. I hope you'll work with us to advance our capabilities in this area, because I believe that we can do better than that, under the budget process available to us.

I would like to move on to discuss the budget proposal on loan guarantees authorized in title XVII of the Energy Policy Act. I'm pleased that this budget allows for $9 billion in loan guarantees for clean energy and innovative technologies. This is a step in the right direction, but Mr. Secretary, I'm convinced that a much bigger step is needed to make a real difference in the development of clean energy technologies.

When Congress created this loan guarantee program in the EPAct of 2005, we envisioned a significantly more ambitious scope of loan guarantees. This program provides incentives for clean energy projects enumerated in section 1703 that are critical to the fight against pollution, or global emissions of greenhouse gases. Implementation of this program at the scale envisioned in the 2005 bill could be a significant step toward addressing the challenge of global climate change, with little or no cost to the Federal Treasury, and I think you know that.

Let me now turn to one other area of tremendous potential, in addressing climate change. I want to commend you for considering investment, and the considerable amount you have put into nuclear energy. I believe that these nuclear power initiatives hold great promise for our efforts to reduce greenhouse gas emissions.

Our nuclear energy, science and technologies is increased in this budget by over 58 percent, to $875 million over the 2006 level. Nuclear energy research and development programs have increased by 114 percent over the fiscal year 2007 level, to $568 million. Nuclear power 2010 has increased 75 percent from fiscal year 2006; this program will complete the two early site permits. I don't think we know very much about the early site permitting process, but it is a godsend if it works, and I'm very glad you put money in, in case it works.

The program will complete two early site permits, Senator McClure, you've been talking about that for a long time, early site permits, Senator McClure who is not here today.

Senator CRAIG. I'm honored.

Senator DOMENICI. You're honored?

Senator CRAIG. I'm honored to be called Senator McClure.

Senator DOMENICI. Excuse me, Senator McClure, I have you on my mind. If he only knew why.

As I was saying, the program will complete two early site permits and two generic combined construction and operating license demonstrations for new nuclear power plants.

Finally, the budget provides for the implementation of a new program authorized in EPAct 2005 to offer risk insurance for the construction of six nuclear power plants.

Each of these initiatives is important to the construction of 32 nuclear power plants that have been proposed.

Now, I want to give you some numbers, and then I will be quiet. But I've been talking about nuclear power, and I want to tell everyone what they really mean in terms of climate change. If all of these plants are built, they will displace 270 million metric tons of CO_2 each year. When those plants have been operating for 5 years, it is estimated that they will have totally displaced the amount of CO_2 produced by the 230 million cars on the roadways of America. Can we talk about nuclear power as a large part of the solution to climate change without talking about a solution to nuclear waste? Obviously it does not make sense to attempt a serious discussion of addressing greenhouse emissions without moving toward a solution of nuclear waste.

I wish you well, and hope we can move with some solutions in that area. I ask that the remainder of my remarks be made a part of the record. Thank you very much for your cooperation and thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Secretary Bodman, why don't you go right ahead with your statement, and then we'll have some questions.

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

Secretary BODMAN. Thank you. I have a brief statement, and then a formal statement that I would like to be included as a part of the record, sir.

The CHAIRMAN. We'll include your full statement in the record, go ahead with any opening statements you'd like.

Secretary BODMAN. Let me begin by noting the very good relationship, Mr. Chairman, that I've enjoyed having with you, and with the ranking member over the last couple of years since I took on this job. I hope to strengthen that good relationship, and build on it, so that all of us at DOE can work with this committee, in order to improve our Nation's energy security.

As you heard in the State of the Union address, President Bush announced several new energy initiatives that really will shape our Department's work over the next couple of years.

The President has announced the goal of reducing American gasoline consumption by 20 percent over the next 10 years. First, by requiring that 35 billion gallons of renewable, alternative fuels be included, and replace a like amount of gasoline over the next 10 years. That would be a 15 percent reduction. And second, by reforming and modernizing the CAFE standards, or the fuel efficiency standards, for automobiles and extending the same rules that applied to light trucks and SUVs, to automobiles. That would account for the balance, or another 5 percent.

Together, we believe that these measures will help reduce our dependence on unstable regimes, it'll also check the growth of carbon emissions. In addition, the President proposed doubling the size of the Strategic Petroleum Reserve, as you've already noted; we think that that is important to help protect our Nation from the vagaries of world oil markets.

We look forward to working with the Congress, and other parts of the administration, other departments, to accomplish these important goals.

Now, let me just take a moment to mention a few of the highlights in our $24.3 billion budget request of Congress. To maintain America's economic prosperity by encouraging scientific innovation, the President last year, proposed the American Competitiveness Initiative. I know that is something that really came out of work that you, Mr. Chairman, did along with Senator Alexander, who used to be on this committee, and I take it has moved on to other assignments.

Our budget proposes $4.4 billion—an increase of about $300 million over the 2007 request—to fund basic research in the physical sciences, and to support science and technology education programs. Something that is, frankly, close to my heart, and I hope to the committee's.

We're also requesting $2.7 billion to accelerate the Advanced Energy Initiative, which was also announced last year. Through this initiative, we will continue to develop the most promising clean energy technologies, including clean coal, biomass, solar energy, wind power, hydrogen research and new technologies, as has been mentioned in nuclear energy.

The President and I believe that nuclear power must play a significant role in the future energy needs, particularly the future electricity needs of our Nation. Our budget requests a total $400 million, including $10 million from the Defense Nuclear Nonproliferation part of the NNSA for the President's Global Nuclear Energy Partnership. That is an international effort to expand the availability of safe, proliferation-resistant, nuclear power.

To make the expansion of nuclear energy possible, we must address the matter of nuclear waste. The budget requests $495 million for the continued development of a geologic waste depository at Yucca Mountain, Nevada.

For the NNSA, the budget proposes $6.5 billion for weapons activities, which includes funding our complex 2030 Program. The idea of that is to create a smaller, more efficient weapons complex that is better able to respond to changing global security challenges. Also, within the NNSA, we request $1.7 billion to support our Defense Nuclear Nonproliferation Activities.

One of the most important responsibilities concerns our commitment to public health and safety. Our fiscal year 2008 budget proposes $5.7 billion to clean up hazardous, radioactive waste left over from the Manhattan Project and the cold war.

I'm proud to note that we have completed the cleanup of 81 sites through the end of fiscal 2006, as well as three sites in Ohio—Fernald, Columbus, and Ashtabula—which have been completed during this fiscal year. We're quite pleased and proud of that.

Mr. Chairman, there are many other productive and promising initiatives underway at our Department. I look forward to discussing them with you during the question and answer session. Thank you.

[The prepared statement of Secretary Bodman follows:]

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

Chairman Bingaman, Ranking Member Domenici, and members of the Committee, I am pleased to be with you this morning to present the President's FY 2008 budget proposal for the Department of Energy.

Before I discuss the details of our budget proposal, I would like to briefly mention the President's energy initiatives announced during the State of the Union. As you know, President Bush asked Congress and America's scientists, farmers, industry leaders and entrepreneurs to join him in pursuing the goal of reducing U.S. gasoline usage by 20 percent in the next ten years. We have named this our "Twenty in Ten" plan and I urge your support for this ambitious plan. For too long, our nation has been dependent on oil. America's dependence leaves us more vulnerable to hostile regimes, and to terrorists who could cause huge disruptions of oil shipments, raise the price of oil, and do great harm to our economy.

America will reach the President's "Twenty in Ten" goal by increasing the supply of renewable and alternative fuels by setting a mandatory fuels standard to require 35 billion gallons of renewable and alternative fuels in 2017; nearly five times the 2012 target now in law. In 2017, this will displace 15 percent of projected annual gasoline use. We have also proposed to reform and modernize Corporate Average Fuel Economy (CAFE) standards for cars and extending the current light truck rule. In 2017, this will reduce projected annual gasoline use by up to 8.5 billion gallons, a further 5 percent reduction that, in combination with increasing the supply of renewable and alternative fuels, will bring the total reduction in projected annual gasoline use to 20 percent.

This plan will also strengthen America's energy security by stepping up domestic oil production in environmentally sensitive ways, and by doubling the current capacity of the Strategic Petroleum Reserve (SPR) to 1.5 billion barrels by 2027.

Coupled with the Advanced Energy Initiative (AEI) and the American Competitiveness Initiative (ACI), which were launched a year ago, these proposals offer a strong plan to strengthen America's energy security, and I encourage members of the Committee to join us in pursuing these proposals.

HIGHLIGHTS OF THE FY 2008 DEPARTMENT OF ENERGY BUDGET

The strength and prosperity of America's economy is built on the security of our nation and the reliability of energy sources. Since 2001, the Administration has invested $158 billion through the Department of Energy (DOE) to help drive America's economic growth, provide for our national security, and address the energy challenges that face our nation. The Department of Energy's fiscal year (FY) 2008 budget request of $24.3 billion stays on course to address the growing demand for affordable, clean and reliable energy; preserve our national security; and enable scientific breakthroughs that will have significant impacts on our quality of life and the health of the American people. The FY 2008 budget was developed to meet those goals.

With a total investment of $24.3 billion in FY 2008, the Department will seek to advance the President's American Competitiveness Initiative aimed at ensuring U.S. technological competitiveness and economic security, and implement the Advanced Energy Initiative which seeks to accelerate the research, development and deployment of clean energy technologies to diversify our nation's energy supply. These efforts, combined with investments to meet our commitment to protect the United States as stewards of our nation's nuclear weapons stockpile and to environmental cleanup, will foster continued economic growth and promote a sustainable energy future.

This budget, while focused on delivering results to meet the nation's priorities, also serves as the roadmap for the future of America's energy security. It is a budget poised to support the President's pro-growth economic policies and spending restraints. In addition, the FY 2008 budget request was shaped to reflect the Department's five strategic themes consistent with the President's Management Agenda to improve performance and accountability across the Department of Energy. They are:

- Promoting America's energy security through reliable, clean, and affordable energy;
- Strengthening U.S. scientific discovery, economic competitiveness, and improving quality of life through innovations;
- Ensuring America's nuclear security;
- Protecting the environment by providing a responsible resolution to the environmental legacy of nuclear weapons; and
- Enabling the Mission through sound management.

To highlight, the FY 2008 budget for the Department of Energy emphasizes investments that will:

- *Advance the American Competitiveness Initiative*.—Last year President Bush launched the American Competitiveness Initiative—(ACI)—to encourage innovation throughout the economy and to give America's children a firm grounding in math and science. The FY 2008 budget investment of $4.4 billion from the Department, an increase of approximately $300 million from the FY 2007 budget request, increases basic research in the physical sciences, builds the large-scale scientific facilities essential for U.S. world leadership, supports thousands of scientists and students—our current and future scientific and technical workforce—and encourages entrepreneurship and technology discovery. Scientific and technological discovery and innovation are the major engines of increasing productivity—indispensable to ensuring growth, job creation, and rising incomes for American families in the technologically driven twenty-first century. The investment is essential if the United States is to maintain its world-class, scientific leadership and global competitiveness.
- *Accelerate the Advanced Energy Initiative*.—At a request of $2.7 billion, $557 million above the FY 2007 budget request of $2.1 billion, the President's Advanced Energy Initiative (AEI) will continue to support clean energy technology breakthroughs that will help improve our energy security through diversification and could help to reduce our dependence on foreign oil. The FY 2008 budget for AEI includes funding for the advancement of renewable energy technologies such as biomass, wind, and solar energy, as well as hydrogen research and development. Also, AEI's diverse energy portfolio includes accelerating the development of clean coal technology, including building a near-zero atmospheric emissions coal plant known as FutureGen. AEI also includes funding for nuclear energy technologies, including the Global Nuclear Energy Partnership, and basic science research that supports developments in many of the aforementioned technologies as well as fusion energy research.
- *Expand the Resurgence of Nuclear Energy*.—Nuclear energy is an important source of energy in the United States and is a key component of the AEI portfolio. Nuclear energy is clean, safe, and reliable, and already supplies about 20 percent of the nation's electricity. Recognizing the potential of nuclear energy, the President announced in February 2006 the Global Nuclear Energy Partnership (GNEP). GNEP seeks to bring about significant, wide-scale use of nuclear energy through the development of better, more efficient and proliferation-resistant nuclear fuel cycles while reducing the volume of nuclear waste requiring ultimate disposal. GNEP will also help reduce the threat of nuclear proliferation around the world. In addition, it helps address the Department's long-term nuclear waste disposal challenges. A total of $405 million ($10 million in Defense Nuclear Nonproliferation) is requested in this budget for GNEP, which is an increase of $155.0 million above the FY 2007 budget request of $250 million.

  We can not forget that expansion of nuclear power is only possible if we continue to develop a responsible path for disposing of spent nuclear fuel. Therefore, $494.5 million is requested in FY 2008 for the continued development of a geologic waste repository at Yucca Mountain, Nevada. Not later than June 30, 2008, the Department intends to complete and submit a License Application to the Nuclear Regulatory Commission for authorization to construct the repository. GNEP has important implications for the permanent repository at Yucca Mountain. The increased efficiency in recycling spent nuclear fuel would ensure that even with expanded use of nuclear energy, the U.S. would need only one geologic repository. GNEP is consistent with the Yucca Mountain Project and extends its benefits beyond the twenty-first century.
- *Transform Our Nuclear Weapons Complex*.—The FY 2008 budget reconfirms the Department of Energy's steadfast commitment to the national security interests of the United States through stewardship of a reliable and responsive nuclear weapons stockpile and by advancing the goals of global non-proliferation. Through the National Nuclear Security Administration (NNSA), the Department directs $6.5 billion in this request for Weapons Activities, a $103 million

increase from the FY 2007 request, to meet the existing requirements for stewardship of the Nation's nuclear weapon stockpile, technologies and facilities, as well as to continue to revitalize the nuclear weapons complex with the goal of a much smaller size by 2030. This effort, called "Complex 2030," is structured to achieve President Bush's vision to create a more efficient Nuclear Weapons Complex of the future that is able to respond to changing national and global security challenges.

- *Reduce the Risk of Weapons of Mass Destruction Worldwide*.—The Department has provided $1.7 billion in this request for Defense Nuclear Nonproliferation, for a comprehensive set of programs to meet our commitment to detect, prevent, and reverse the proliferation of Weapons of Mass Destruction (WMD) in close cooperation with our partners around the world. This program is an Administration priority and while the funding amount shows a 3 percent decrease, this reflects accelerated completions in FY 2007. Further, the request provides significant out-year growth to fulfill our international agreements and accelerate our work to reduce the risk of WMD threats. Among many advances, the FY 2008 budget for example will further our work in the Megaports program by initiating the installation of radiation detection equipment at the Port of Hong Kong.
- *Meet Our Commitments to Public Health and Safety and the Environment*.—During my first days at the Department of Energy, I announced safety as my top priority and the number one operating principle of the Department. To implement this vision, we created a new Office of Health, Safety and Security. As I said at the time, "As Secretary of Energy, ensuring the safety of workers across the DOE complex is my top priority and this new office will go a long way in strengthening our safety and security organization. We must be world class not only in how we carry out our mission, but in the safe, secure, and environmentally responsible way in which we manage operations at our facilities across the country." The organization's FY 2008 budget request of $428 million, builds on a number of actions the Department has taken over the past two years to increase safety of DOE workers.

  The FY 2008 budget includes $5.7 billion for the Environmental Management program to protect public health and safety by cleaning up hazardous, radioactive legacy waste left over from the Manhattan Project and the Cold War. Past investments have resulted in the completed clean up of 81 sites through the end of FY 2006, including Rocky Flats, Colorado, and a total of 86 sites by the end of FY 2007, including the Fernald site in Ohio, which was completed in January 2007. This budget allows the program to continue to make progress towards cleaning up and closing sites and focuses on activities with the greatest risk reduction.

  As the Department continues to make progress in completing clean up, the FY 2008 budget request of $194 million for Legacy Management supports the Department's long-term stewardship responsibilities and payment of pensions and benefits for our former contractor workers after site closure.

  The GNEP strategy complements the Department's Civilian Radioactive Waste Management program, which is working to address the problems of long-term nuclear waste disposal in an environmentally sound manner. The program office is working to construct a permanent repository for spent nuclear fuel at Yucca Mountain. Funding of $494.5 million is proposed in FY 2008 to support the development of a repository that will protect public health and safety in ways that are both environmentally and economically viable. The funding also supports the submission, not later than June 30, 2008, of a comprehensive License Application to the Nuclear Regulatory Commission for authorization to construct the repository.

  In light of the increased number of sophisticated cyber attacks directed at all facets of our communities, from military to civilian to private users, the Department is taking significant steps to secure the virtual pathways and mitigate the threat from cyber intrusions. Implementing these steps will be seamless and will not interrupt the availability of information systems resources while preserving the confidentiality and integrity of the information and their contents. A budget request of $170 million in FY 2008 supports the Department's efforts to defend against emerging, complex cyber attacks. Through these efforts, the Department will be in a better position to effectively manage and monitor cyber risk across the complex. In FY 2008, DOE will increase support on a Department-wide basis to deploy new cyber security tools and cyber security management activities to detect, analyze, and reduce the threat across the complex.

PROMOTING AMERICA'S ENERGY SECURITY THROUGH RELIABLE, CLEAN, AND AFFORDABLE ENERGY

The FY 2008 budget request addressing energy and environmental security is an essential component of the Department's strategic goals. This priority is reflected in the increase of $506 million or 20 percent of the Department's energy programs compared to the FY 2007 budget request. These investments in research, development and deployment could strengthen America's energy security, environmental quality, and economic vitality through public-private partnerships that expand the use of cost-effective energy efficient technologies; enable and accelerate market adoption of clean, reliable and affordable energy technologies; and support the implementation of the President's National Energy Policy. Additionally, the energy programs at DOE are working with the basic research and scientific community to focus on development of technology components that could enable and catalyze the rapid development, commercialization and deployment of next generation energy technologies.

This budget includes President Bush's Advanced Energy Initiative (AEI) which aims to reduce our dependence on foreign sources of oil and transforming our national energy economy by promoting development of cleaner sources of electricity production. For too long, our nation has been dependent on oil. America's dependence leaves us more vulnerable to disruptions to domestic production like hurricanes, to hostile regimes, and to terrorists—who could cause huge disruptions of oil shipments, raise the price of oil, and do great harm to our economy. In concert with the President's Twenty In Ten initiative to reduce U.S. gasoline usage by 20 percent in the next ten years, or by 2017, a total of $2.7 billion is requested in FY 2008 to support the AEI. These funds support a diverse portfolio of energy research and development (R&D) and deployment programs designed to help meet the energy challenges of the 21st century. Highlights of the request include the following components of the President's AEI:

- *The President's Biofuels Initiative*.—The President's goal to make cellulosic ethanol cost-competitive by 2012 is the focus of the biomass program. Biomass is the key renewable resource supported by the Department because it is a promising renewable option for producing liquid transportation fuels in the near term, thereby reducing our dependence on imported oil. In FY 2008, the Department is investing $179 million to support the goals of the initiative.
- *The President's Hydrogen Fuel Initiative*.—This budget request includes $309 million (an increase of $19.5 million above the FY 2007 request) for the President's Hydrogen Fuel Initiative and completes the President's commitment of $1.2 billion over five years for this initiative. Increased funding is proposed to expand research in several areas, including: hydrogen production from renewables; materials for hydrogen storage; fuel cell stack components; and a new R&D effort on cost-effective manufacturing technologies to help industry build a competitive, domestic hydrogen and fuel cell supplier capability.
- *Vehicles Technologies and FreedomCAR*.—This year's request emphasizes plug-in hybrid vehicle component technologies by increasing the requested research support to $81 million. These technologies offer the potential to make significant additional improvements in petroleum reduction beyond that achievable with standard hybrid configurations. By utilizing energy drawn from the nation's electricity grid at off-peak times to charge high energy batteries, these technologies will be able to operate in an electric vehicle mode for expanded distances, potentially meeting most drivers' needs for commuting and short distance driving.
- *The President's Solar America Initiative (SAI)*.—Launched in FY 2007, SAI is designed to achieve cost competitiveness for photovoltaic (PV) solar electricity by 2015. With a request of $148 million in FY 2008, SAI seeks to achieve its mission through public-private partnerships with industry, universities, national laboratories, states, and/or other government entities.

The FY 2008 budget request also supports renewable energy and energy efficiency R&D that could help reduce the overall demand for natural gas and lower emissions in the electricity sector. The FY 2008 request for the Wind Energy program includes $40 million to continue wind energy research to reduce costs and overcome barriers to large-scale use of wind power. The FY 2008 budget also includes $19 million to continue the accelerated development of Solid State Lighting technologies that have the potential to reduce commercial building lighting electricity consumption by 50 percent and could revolutionize the energy efficiency, appearance, visual comfort, and quality of lighting.

Our energy portfolio also recognizes the abundance of coal as a domestic energy resource and remains committed to research and development to promote its clean and efficient use. Coal in the U.S. accounts for 25 percent of the world's coal reserves. The foundation of the Department's clean coal research program is the FutureGen project, which will establish the capability and feasibility of co-producing electricity and hydrogen from coal with near-zero atmospheric emissions. The Administration remains strongly committed to FutureGen and is requesting $108 million in FY 2008, consistent with the project plan to keep the project on schedule for start-up in 2012. An additional $246 million is requested within the Coal program to support research and development on technologies needed to realize the concept.

Funding for the Coal program will be partially derived from transferring $166 million in prior year balances from the Clean Coal Technology appropriation to the Fossil Energy Research and Development appropriation. These prior year balances are no longer needed for active Clean Coal Technology projects and will be used to support FutureGen ($108 million) and the Clean Coal Power Initiative ($58 million). Better utilization of these fund balances to support FutureGen and related technologies will generate real benefits for America's energy security and environmental quality. Using fund balances and new appropriations, in 2008 the Clean Coal Power Initiative will issue a solicitation for demonstration of technologies focusing on carbon sequestration.

As part of the greenhouse gas mitigation strategy, the Department continues to develop low cost carbon sequestration technology for both new and existing coal plants. To that end, the Department includes $79 million in FY 2008 for sequestration research and development, including initiating work on four large-scale sequestration field tests, each of which will inject about one million tons per year of carbon dioxide. The carbon sequestration program, together with FutureGen and other supporting research, will assure the timely development of this technology that will be capable of eliminating 90 percent of carbon emissions from new coal fired plants.

Consistent with the FY 2006 and FY 2007 budget requests, the FY 2008 budget request continues to shift resources away from oil and gas research and development programs, which have sufficient market incentives for private industry support, to other energy priorities. The decision reflected strategic consideration by assessing the program's technical effectiveness and comparing it to other programs which have achieved more clearly demonstrated and substantial benefits. Federal staff, paid from the program direction account, will work toward an orderly termination of the program in FY 2008.

The Energy Policy Act of 2005 established a new mandatory oil and gas research and development (R&D) program, called the Ultra-Deep and Unconventional Natural Gas and Other Petroleum Research program, that is funded from federal revenues from oil and gas leases beginning in FY 2007. These R&D activities are more appropriate for the private-sector oil and gas industry to perform. Therefore the FY 2008 budget proposes to repeal the program through a separate legislative proposal.

To further assure against oil supply disruptions that could harm our economy, this budget also proposes $168 million to begin expanding the Strategic Petroleum Reserve to an ultimate capacity of 1.5 billion barrels by 2027 as announced by President Bush in his State of the Union address. DOE will begin filling the Reserve to its current capacity of 727 MB by immediately purchasing oil for the Reserve in FY 2007, and also placing the Department of the Interior's federal royalty in-kind oil into the Reserve in FY 2007 and FY 2008. The FY 2008 Budget requests funds to expand the capacity of the SPR to the one billion barrel capacity authorized by current law and funds to conduct National Environmental Policy Act work to expand to 1.5 billion barrels. The Administration will, through a separate legislative proposal, seek the necessary authority to increase the authorized capacity of the Reserve from one billion barrels to 1.5 billion barrels.

The Energy Policy Act of 2005 authorized the establishment of a new Loan Guarantee Program. This budget request includes $8.4 million to operate a Loan Guarantee Office. This program will centralize loan guarantee services for the Department to ensure all processes and criteria are applied uniformly in accordance with established requirements, procedures, guidelines, regulations and manage the assessment of all loan guarantee applications submitted to the Department in compliance with Title XVII of the Energy Policy Act of 2005. Section 1703 of that Act authorizes the Department to provide loan guarantees for renewable energy systems, advanced nuclear facilities, coal gasification, carbon sequestration, energy efficiency, and many other types of projects. The budget proposes an FY 2008 loan volume limitation of $9 billion. Of this amount, the Department will seek to guarantee approximately $4 billion in loans for central power generation facilities (for example, nuclear facilities or carbon sequestration optimized coal power plants); $4 billion in

loans for projects that promote biofuels and clean transportation fuels; and $1 billion in loans for projects using new technologies for electric transmission facilities or renewable power generation systems.

Reliable energy information plays a critical role in promoting efficient energy markets and informing the public and policy makers. This budget requests a total of $105 million for the Energy Information Administration to improve energy data and analysis programs, reflecting a 17 percent increase over the FY 2007 budget request.

NUCLEAR ENERGY

A staple in our energy portfolio, nuclear energy has the potential to drive our 21st century economy to produce vast quantities of economical hydrogen for transportation use without emitting greenhouse gases and to generate heat and clean water to support growing industry and populations worldwide. In FY 2008, a total of $874.6 million is requested for nuclear energy activities. Included in the total is $395 million for the Advanced Fuel Cycle Initiative to support the Global Nuclear Energy Partnership (GNEP). GNEP is a comprehensive strategy to: enable an expansion of nuclear power in the United States and around the world; promote nuclear nonproliferation goals; and help resolve nuclear waste disposal issues. An additional $10 million is requested within the nuclear nonproliferation budget to support safeguards technology development as part of the far-reaching GNEP strategy.

GNEP will build upon the Administration's commitment to develop nuclear energy technology and systems and enhance the work of the United States and our international partners to strengthen nonproliferation efforts. The GNEP strategy will accelerate efforts to:

- Provide abundant energy without generating carbon emissions or greenhouse gases;
- Recycle used nuclear fuel to minimize waste and reduce proliferation concerns;
- Safely and securely allow developing nations to deploy nuclear power to meet their energy needs;
- Assure maximum energy recovery from still-valuable used nuclear fuel; and
- Reduce the number of required U.S. geologic waste repositories to one for the remainder of this century.

Through GNEP, the United States will work with key international partners to develop new recycling technologies. Recycled fuel would be processed through advanced burner reactors to extract more energy, reduce waste and consume plutonium, dramatically reducing proliferation risks. As part of GNEP, the U.S. and other nations with advanced nuclear technologies would offer developing nations a reliable supply of nuclear fuel in exchange for their commitment to forgo enrichment and reprocessing facilities of their own, alleviating a proliferation concern.

GNEP would also help resolve America's nuclear waste disposal challenges. By recycling spent nuclear fuel, the heat load and volume of waste requiring permanent geologic disposal would be significantly reduced, delaying the need for another repository in addition to the one at Yucca Mountain for the remainder of this century.

To support the near-term domestic expansion of nuclear energy, the FY 2008 budget seeks $114 million for the Nuclear Power 2010 program to support continued cost-shared efforts with industry to reduce the barriers to the deployment of new nuclear power plants in the United States.

The technology focus of the Nuclear Power 2010 program is on Generation III+ advanced light water reactor designs, which offer advancements in safety and economics over older designs. If successful, this seven-year, $1.1 billion project (50 percent to be cost-shared by industry) could result in a new nuclear power plant order by 2009 and a new nuclear power plant constructed by the private sector and in operation by 2014.

The Energy Policy Act of 2005 authorized the Secretary to enter into standby support contracts for six new advanced nuclear reactors. The program will allow DOE to offer standby support/risk insurance to protect sponsors of the first new nuclear power plants against the financial impact of certain delays that are beyond the sponsors' control. This program would cover 100 percent of the covered cost of delay, up to $500 million for the first two new reactors, and 50 percent of the covered cost of delay, up to $250 million each, for up to four additional reactors. This risk insurance offers project sponsors additional certainty and incentive to provide for the construction of a new nuclear power plant by 2014. In FY 2008, the Department will receive and evaluate applications for standby support contracts from sponsors of new nuclear power plants.

The FY 2008 budget request includes $36 million to continue to develop next-generation nuclear energy systems known as "Generation IV (GenIV)". These technologies will offer the promise of a safe, economical, and proliferation resistant source of clean, reliable, sustainable nuclear power with the potential to generate hydrogen for use as a fuel. Resources in FY 2008 for GenIV will be primarily focused on long-term research and development of a gas-cooled very-high temperature reactor, the reactor technology of choice for the Next Generation Nuclear Plant (NGNP) project.

STRENGTHENING U.S. SCIENTIFIC DISCOVERY, ECONOMIC COMPETITIVENESS, AND IMPROVING QUALITY OF LIFE THROUGH INNOVATIONS IN SCIENCE AND TECHNOLOGY

Today our nation's ability to sustain a growing economy and a rising standard of living for all Americans depends in part on continued advances in science and technology. Scientific and technological discovery and innovation are engines of increasing productivity and are indispensable to ensuring economic growth, job creation, and rising incomes for American families in the technologically driven 21st century.

The FY 2008 Office of Science budget request of $4.4 billion or 7 percent above the FY 2007 request is designed to sustain the planned doubling of Federal support for physical sciences research by FY 2017 under the American Competitiveness Initiative. Given the large-scale nature of Office of Science facilities and the thousands of scientists and researchers receiving DOE support for their research and education, sustained and predictable budgetary trajectories are essential to preserve America's vitality in science and avoid an attrition of U.S. scientific talent.

DOE's Office of Science has played a central role over the last 50 years in supporting and sustaining institutional research in the physical sciences in the United States. Among Federal agencies, it is the largest supporter of basic research in the physical sciences, providing over 40 percent of such funding. The Office of Science is the main builder and operator of large-scale scientific facilities and instruments that are increasingly important to physical sciences research and maintains and operates ten major national laboratories that have been seedbeds of scientific discovery, technological innovation, and economic progress. Office of Science funding also plays an indispensable role in training, educating, and sustaining the nation's scientific workforce. Each year, Office of Science facilities meet the needs of a diverse set of 20,000 researchers. Thousands of university researchers—professors, "post-docs", and undergraduate students—also rely, each year, on Office of Science support. Roughly half of the researchers at Office of Science-run facilities come from universities, and about a third of Office of Science research funds go to institutions of higher learning.

The Office of Science is also the main federal sponsor of basic research aimed at achieving the scientific breakthroughs necessary to meet our nation's growing energy challenge by developing alternative, carbon-free or carbon neutral sources of energy to enhance our energy security and protect the global environment.

Many scientists believe there is a real promise that biotechnology may transform the field of energy production—providing transformational breakthroughs that will enable the cost-effective, homegrown production of biofuels that can eventually meet much of our transportation energy demand and substantially reduce net carbon dioxide emissions. Today the Genomics: GTL program supports advanced biotechnology tools and techniques to probe for biological and biologically inspired solutions to Department mission challenges in energy, carbon sequestration, and environmental remediation. The FY 2008 request includes $75 million for three innovative Bioenergy Research Centers that will bring together multi-disciplinary teams of some of the nation's leading researchers in a mission-driven laboratory setting to probe plants and microbes at all levels (molecular, cellular, system) in an effort to crack nature's code and achieve the breakthroughs that will make biofuel production cost-effective on a national scale.

The capacity to create new, stronger, more durable, or more energy efficient materials—"smart" materials that respond to the environment, improved catalysts for oil refining, better batteries, more efficient windows, to name only a few applications—increases as we gain the tools and expertise to manipulate matter at the atomic level. These scientific advances contribute to improving our way of living. This year, the Office of Science will continue this work by completing construction of the last Nanoscale Science Research Center in FY 2008, and the FY 2008 request provides $20 million each for operations at the Office's five Nanoscale Science Research facilities. In addition, construction continues on the Linac Coherent Light Source, the world's first x-ray free electron laser, which will enable us to observe chemical reactions at the molecular level in real time. Project engineering and design funds are also provided for the proposed National Synchrotron Light Source II, which would

provide unique capabilities for probing structural biology and nanostructures and observing materials under extreme conditions.

Computational power gives scientists the capability to explore complex systems and simulate experiments that would be impossible to perform in a laboratory. With the FY 2008 budget request, the Office of Science performance goal is attainment of roughly one petaflop, which is a million billion operations per second, of computational capability to sustain the Department's position as world leader in civilian computing power. The Advanced Scientific Computing Research request increases by $21.5 million over the FY 2007 request.

Progress in energy-related and use-inspired basic science builds on the foundation of discovery in more fundamental science. These investigations into the very nature and origins of our universe expand the horizons of our knowledge, providing insight into who we are and where we come from. Within the $4.4 billion request for Science, $146.5 million is provided for operations of the Relativistic Heavy Ion Collider (RHIC), which enables us to glimpse conditions of the very early universe, and $79.2 million is for the Continuous Electron Beam Accelerator Facility (CEBAF), which provides insight into the quark structure of matter.

Within high energy or particle physics, research promises to radically transform our understanding of the structure of matter, space, and time. Within the Office of Science budget request, $158 million is provided for operations of the Tevatron at Fermilab for collider and neutrino physics programs. In addition, the request provides $62 million to support the research of U.S. scientists at the Large Hadron Collider in CERN, which will be the world's most powerful accelerator. R&D support is maintained for the International Linear Collider, to maintain a strong U.S. role in the development of this potential next-generation accelerator, which promises to further illuminate the nature of matter at terascale energies.

In the Asia-Pacific Partnership, we are a vital member of the international effort to promote the development and deployment of clean energy goods and services among our Pacific-Rim partners; Australia, China, Japan, India and South Korea. To date, the partnership has launched nearly a hundred projects that advance energy efficiency, clean development and common standards on which new clean energy technology and programs can be built. This partnership has created a forum where American companies can learn, compete, and innovate, in a region with extraordinary economic growth, energy demands and market potential. The $15 million requested to support the partnership will be in concert with contributions from private-sector and international partners.

Finally, on November 21, 2006, the U.S. Department of Energy signed an agreement with China, the European Union, India, Japan, the Republic of Korea and the Russian Federation to build the international fusion energy project known as ITER. Under this arrangement of international scientific cooperation, these nations will collaborate to construct an experimental reactor that will put the world on a path toward harnessing fusion energy—the fuel that powers the stars—for the production of plentiful, environmentally friendly, carbon-free energy. The request provides $160 million for the U.S. contribution to this international effort.

ENSURING AMERICA'S NUCLEAR SECURITY

The President, in his first days in office, was faced with the new and challenging realities of national security in the 21st century. The War on Terror has substantially and fundamentally reshaped the national security programs and activities in the Department. This budget of $24.3 billion for the Department is an important component of the President's strategy to address some of these very important issues facing our nation. Within the $24.3 billion request in FY 2008, $9.4 billion or 39 percent is proposed to support DOE's contribution to the Federal government-wide effort to ensure the security of our nation.

The National Nuclear Security Administration (NNSA) continues significant efforts to meet Administration and Secretarial priorities leveraging science to promote national security. The FY 2008 budget proposes $9.4 billion to meet defense and homeland security-related objectives. The budget request maintains current commitments to the nuclear deterrence policies of the Administration's Nuclear Posture Review. To implement those policies for the long term, NNSA has established a new planning scenario, "Complex 2030", to guide the transformation of the complex. The FY 2008 budget also continues to fund a high profile strategy to mitigate throughout the world the threat of weapons of mass destruction, and provides for the nuclear propulsion needs of the U.S. Navy. Key investments include:

- Transforming the nuclear weapons stockpile and infrastructure while meeting Department of Defense requirements, through the Reliable Replacement Warhead and other Complex 2030 initiatives;

- Conducting innovative programs in the nations of the former Soviet Union and other countries to address nonproliferation priorities;
- Supporting naval nuclear propulsion requirements of the U.S. Navy;
- Maintaining comprehensive security for facilities, employees and information implementing and sustaining upgrades throughout the complex;
- Providing nuclear emergency response assets in support of homeland security;
- Reducing the deferred maintenance backlog and achieving facility footprint reduction goals; and,
- Providing corporate management and oversight for NNSA programs and operations.

The United States continues a fundamental shift in national security strategy to address the realities of the 21st century. The Administration's Nuclear Posture Review (NPR) addressed a national security environment in which threats may evolve more quickly and be less predictable and more variable than in the past. The NPR recognizes the need to transition from a threat-based nuclear deterrent with large numbers of deployed and reserve weapons, to a deterrent consisting of a smaller nuclear weapons stockpile with greater reliance on the capability and responsiveness of the Department of Defense (DoD) and NNSA infrastructure to respond to threats. The NNSA infrastructure must be able to meet new requirements in a timely and agile manner while also becoming more sustainable and affordable. The Department of Energy has created a plan for a revitalized nuclear weapons complex called "Complex 2030." This significantly more agile and responsive complex will allow further reductions in the nuclear stockpile by providing an industrial hedge against geopolitical or technical problems and will reduce security costs by consolidating nuclear materials. The FY 2008 President's Budget contains some of the resources required for transformation of the Complex in ongoing base program activities that are already underway and contributing to Complex 2030 objectives. The Administration is still studying plans and funding projections for other parts of the effort.

The FY 2008 budget request of $6.5 billion for Weapons Activities includes all programs to meet the immediate needs of the stockpile, stockpile surveillance, annual assessment, and life extension programs. On November 30, 2006, the Nuclear Weapons Council determined that the Reliable Replacement Warhead (RRW) program was feasible as a means for sustaining the long-term safety and reliability of the nation's nuclear deterrent force. This shift in strategy from a Life Extension Program to a RRW program will require substantial planning and resource realignments by the Departments of Defense (DoD) and Energy. The Campaigns are focused on long-term vitality in science and engineering and on R&D supporting current and future stockpile stewardship and DoD requirements. A number of these NNSA programs and facilities also support scientific research users from other elements of the Department, Federal government, and the academic and industrial communities. Within the Nuclear Weapon Incident Response programs, a new National Technical Nuclear Forensics R&D and operations program is established, as well as a stabilization program through leveraged Render Safe R&D development of first generation equipment in support of homeland security. NNSA's Safeguards and Security activities are also encompassed within the request for Weapons Activities. The Defense Nuclear Security program supports the physical security needs at NNSA sites. These activities increase by 17 percent to sustain base program increases associated with the FY 2003 DBT upgrades, and a revised schedule for 2005 Design Basis Threat implementation at NNSA sites. Cyber Security activities, protecting information and information technology infrastructure, increase by over 15 percent. This will provide for the first step in a major five-year effort focused on revitalization, certification, accreditation and training across the NNSA complex.

Preventing weapons of mass destruction from falling into the hands of terrorists and rogue states is one of this Administration's top national security priorities. The FY 2008 request of $1.67 billion for nuclear nonproliferation activities strongly supports the international programs that are denying terrorists and rogue states the nuclear materials, technology and expertise needed to develop or otherwise acquire nuclear weapons. NNSA continues unprecedented efforts to protect the U.S. and our allies from threats, including $265 million for cutting-edge nonproliferation research and development for improved technologies to detect and monitor nuclear proliferation and nuclear explosions worldwide. There are additional major efforts focused on potential threats abroad. For example, in the area of nuclear material protection and cooperation the program has completed security upgrades for Russian navy nuclear fuel and weapons storage at the end of FY 2006 and will complete security upgrades for Rosatom facilities by the end of FY 2008. Also by the end of FY 2008, the program will complete security upgrades at the nuclear warhead sites of the Russian Strategic Rocket Forces and the 12th Main Directorate. To help complete

the shutdown of three Russian nuclear reactors still producing 1.2 metric tons of plutonium per year and to replace them with conventional fossil fuel power plants, this budget request includes $182 million for the Elimination of Weapons Grade Plutonium Production program.

The budget includes a request of $334 million for the U.S. Mixed Oxide Fuel Fabrication Plant project at DOE's Savannah River Site in South Carolina. This facility will dispose of 34 metric tons of U.S. surplus plutonium and facilitate complex-wide consolidation of nuclear material. The project is awaiting Congressional authorization to proceed to construction. Various programs funded by NNSA's Defense Nuclear Nonproliferation appropriation support the President's Bratislava Nuclear Security Cooperation initiative (about $293 million) including security upgrades at Russian nuclear warhead sites, and also support the Global Partnership against the Spread of Weapons of Mass Destruction ($537 million) to meet the U.S. commitment to the G8 nations. In coordination with the Office of Nuclear Energy, the budget request also includes $10 million to support the Global Nuclear Energy Partnership (GNEP), which is focused on advanced safeguards technology development that is crucial to the ultimate success of the GNEP initiative.

NNSA continues to support the United States Navy's nuclear propulsion systems. The FY 2008 request of $808.2 million is an increase of 1.6 percent over the FY 2007 request level. The funding increase assists the Naval Reactors program to ensure the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers and fulfills the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements.

PROTECTING THE ENVIRONMENT BY PROVIDING A RESPONSIBLE RESOLUTION TO THE ENVIRONMENTAL LEGACY OF NUCLEAR WEAPONS PRODUCTION

The Federal Government must address the legacy of our past and our responsibility to the American taxpayers to provide a clean, safe and healthy environment to live in. A total of $6.34 billion is dedicated in FY 2008 to support the three key pillars that set the framework for the Department to reach that goal. The first pillar is to continue our environmental cleanup ($5.7 billion) of contaminated Cold War sites across the country. The second pillar is to continue to provide site post-closure management and to carry out our responsibilities ($194 million) to our former contractor workers. The third pillar completes the framework by working to construct a permanent nuclear waste repository at Yucca Mountain ($494.5 million) to address long-term nuclear waste disposal and for authorization of which the Department will submit a License Application to the Nuclear Regulatory Commission not later than June 30, 2008. And it goes without saying that my core principle of safe operations throughout the Department will be applied with vigor within this framework.

To deliver on the Department's cleanup obligations stemming from 50 years of nuclear research and weapons production during the Cold War, the Environmental Management program (EM) continues to focus its resources on the highest health and safety risks, such as treatment of over 90 million gallons of radioactive liquid waste stored in decades old tanks; disposition of thousands of metric tons of special nuclear material (surplus weapons-grade uranium and plutonium), spent nuclear fuel, and solid waste stored in older facilities that do not meet today's environmental requirements; and remediation of contaminated soil and groundwater. Up through FY 2007, DOE has completed cleanup of 86 of 108 legacy nuclear waste sites, with another three site cleanup completions—the Pantex Plant in Texas; Lawrence Livermore National Laboratory-Site 300 in California, and the Inhalation Toxicology Lab in New Mexico—planned for completion in FY 2008.

In FY 2008, the budget includes $5.7 billion to continue cleanup, giving priority to those activities that offer the greatest risk reduction while staying focused on completing cleanup and closing sites. This is a reduction from the FY 2007 request of $173 million, which in part reflects completion of some sites, but also reflects hard choices that must be made. Safety remains the utmost priority. EM is committed to applying my safety principles and will continue to maintain and demand the highest safety performance to protect the workers and the communities where EM operates.

In keeping with the principles of reducing risks and environmental liabilities, the FY 2008 request of $5.7 billion will support the following priority activities:

- Stabilizing radioactive tank waste in preparation for treatment (about 31 percent of the FY 2008 request);
- Storing and safeguarding nuclear materials and spent nuclear fuel (about 17 percent of the FY 2008 request);

- Dispositioning transuranic, low-level and other solid wastes (about 16 percent of the FY 2008 request);
- Remediating major areas of our sites and decontamination and decommissioning excess facilities (about 26 percent of the FY 2008 request).

One of the significant cleanup challenges the EM program faces is the construction of the Hanford Waste Treatment and Immobilization Plant (WTP), which will treat highly radioactive tank waste at Hanford. WTP has encountered significant technical and project management problems, which have caused the project to slow down while the problems were addressed. With the help of senior professionals from private industry, academia and other Government agencies, EM has undertaken an intensive review scrutinizing key elements of the project, including the technology, cost and schedule, project management, project controls, and earthquake seismic criteria. In December 2006, the Department approved a revised, validated baseline of $12.3 billion for WTP. The Department believes WTP is now back on a sound technical and project management footing, and is ready to move forward.

Despite numerous accomplishments and successfully accomplishing site completions, the EM program has experienced setbacks in achieving its vision of accelerated cleanup. At the core of these setbacks are optimistic planning assumptions that have not materialized, combined with new scope and requirements that were not anticipated. As a result, EM estimates the lifecycle cost of the program could increase by $50 billion. EM continues to take steps to address challenges and improve the effectiveness and efficiency of its operation. The Department remains committed to completing this important and necessary mission.

After the Environmental Management program completes cleanup of sites throughout the DOE complex, post closure stewardship activities are transferred to the Office of Legacy Management (LM). Post closure stewardship includes long-term surveillance and maintenance activities such as groundwater monitoring, disposal cell maintenance, records management, and management of natural resources at sites where active remediation has been completed. At some sites the program includes management and administration of pension and benefit continuity for contractor retirees. In FY 2008, $194.2 million is requested to carry out legacy management functions. The majority of the funding is for long-term stewardship activities and pension and post-retirement benefits for former contractor employees at the Rocky Flats, Colorado, and the Fernald, Ohio, closure sites.

Over the last 50 years, our country has benefited greatly from nuclear energy and the power of the atom. We need to ensure a strong and diversified energy mix to fuel our nation's economy, and nuclear power is an important component of that mix. Currently more than 50,000 metric tons of spent nuclear fuel is located at over 100 above-ground sites in 39 states, and every year reactors in the United States produce an additional approximately 2,000 metric tons of spent fuel. In order to ensure the future viability of our nuclear generating capacity, we need a safe, permanent, geologic repository for spent nuclear fuel and high-level nuclear waste at Yucca Mountain. The FY 2008 budget of $494.5 million sets us on the path to meet that goal. The funding will support the development of a repository including:

- Filing and defending a high quality License Application at the Nuclear Regulatory Commission (NRC) based on a simpler and safer approach to handling spent nuclear fuel and operating the repository not later than June 30, 2008;
- Continuing the planning and design for facilities required for the receipt of spent nuclear fuel and high-level waste for emplacement in the repository;
- Making critical infrastructure upgrades at Yucca Mountain to ensure worker, regulator, and visitor safety and operational efficiency; and
- Continuing critical interactions needed to support national transportation planning activities and issuance of the Nevada Rail Alignment Environmental Impact Statement.

Designing, licensing and constructing a permanent geologic repository for spent nuclear fuel and high level waste will resolve the challenge of safe disposal of these materials and make construction of new nuclear power plants through the President's Global Nuclear Energy Partnership (GNEP) more feasible, helping to expand our energy options and secure our economic future. In addition, a repository is necessary to support nuclear nonproliferation goals, contributing to national security objectives.

In late 2006, the Department announced its plans to submit a License Application for the repository to the NRC by June 30, 2008, and to initiate repository operations in 2017. This opening date of 2017 is a "best-achievable schedule" and is predicated upon enactment of pending legislation. This proposed legislation addresses many of the uncertainties, currently beyond the control of the Department, that have the po-

tential to significantly delay the opening date for the repository. The legislative proposal that the Administration submitted to Congress in 2006 and will resubmit in this Congress addresses significant funding reform and regulatory issues that, if enacted, would allow the Department to secure the necessary fiscal resources needed for program success and clears the path for the program to move forward expeditiously.

CONCLUSION

I appreciate the opportunity to appear before you to present the FY 2008 budget proposal for the Department of Energy. I will be happy to take any questions that members of the Committee may have.

The CHAIRMAN. Thank you very much.

Why don't we do 5–minute rounds here, and if people have other questions, we'll do a second or third round.

Let me start, and ask a question about this loan guarantee program. Senator Domenici referred to it. That's in the energy bill that we passed in 2005. One of our real frustrations, and perhaps one of yours, Mr. Secretary, is the difficulties we've had in seeing this loan guarantee program get up and implemented. My understanding is that the Department did not assign anyone to work on this, because there had not been specific funding provided in the appropriations bill for that.

I guess the first question would be, isn't this the kind of thing that could have been pursued right after the enactment, right after the signing of that legislation? I don't know how tight your budget is over there, but I would think you could find the funds to commit some people to this kind of activity, early on.

Secretary BODMAN. Mr. Chairman, we requested $1 million during fiscal 2006 reprogramming, so that we could start the process of staffing this. We have three people who work on it now, and who have done the work so far, but we need many more than that in order to manage this kind of a program. That request for reprogramming was denied, for whatever reason it was denied, and we have therefore been operating during 2007 with the same level of funding, namely zero, that we had before.

We have done our best, given the fact that there has not been any funding for this, even though we have requested it.

We are hopeful that we will receive such support as a result of the continuing resolution, but that remains to be seen.

I can tell you that we have started down the path by asking for preliminary indications of who is interested; this is without trying to get a complete body of work done, and we have had over 100 responses. Trying to respond to 100 responses is going to take some manpower and some womanpower to be able to do that, and we are hopeful of being able to do it.

I would also add, as I have explained to you during my visits with you, that I used to work in this general area, evaluating these kinds of projects. This is very tough to do. It's tough to be right, and I would rather be right, and I would rather be correct in setting up this office, so that it works effectively for the future—than I would worry about the number and the quantity of programs that we are able to support.

We've laid out a program to recruit people, they've expressed interest, we've had people ready to go, and frankly they have backed off a bit, given the fact that we don't have funding for it. As soon as we get that, we will proceed.

The CHAIRMAN. Well, let me just follow up by saying that this continuing resolution, as I understand it, has the $4 billion that Senator Domenici referred to, of authority to limit—it says that you're limited to issuing loan guarantees in the total amount of $4 billion. It also says that you need to promulgate a rule before you can issue any loan guarantees.

Secretary BODMAN. Yes, sir.

The CHAIRMAN [continuing]. And that you need to do that within 6 months. I guess, an obvious set of questions is: is there any work been done to promulgate such a rule? Is this something which you're ready to do, once this continuing resolution is enacted? Or do you have a period of staffing up after this continuing resolution is enacted, before we can even begin to promulgate a rule? I mean, what I'm concerned about, frankly, is that the Bush administration's going to be leaving town before we issue any——

Secretary BODMAN. No, I understand. I'm concerned about that myself. But I repeat, we have done work on a rule, that that is something the General Counsel of the Department, David Hill, has focused time and attention to. We are aware of it. What, exactly, the schedule will be, I don't know, but I would be happy to take that question for the record, and give you a more thoughtful response, rather than trying to estimate it here on the fly.

The CHAIRMAN. I would appreciate it. I think that would give us some indication—we had a conference last week on bio-fuels; several of the people who testified said they had filed pre-applications.

Secretary BODMAN. Right.

[The information follows:]

Section 20320(b) of Public Law 110-5, enacted February 15, 2007, requires that DOE issue final regulations for the Title XVII loan guarantee program before issuing any loan guarantees under that program. Section 20320(c) states that the final regulations must be issued within six months of the date of enactment, i.e. by August 15, 2007. The Department is presently preparing a Notice of Proposed Rulemaking (NOPR) which will propose regulations for the implementation and operation of the Title XVII program, and which will solicit comments from all interested parties. In conformance with P.L. 110-5, the NOPR will propose programmatic, technical, and financial eligibility criteria, due diligence requirements, and procedures and policies for the loan guarantee program. The Department anticipates issuing the NOPR in April 2007, and anticipates a 45-day public comment period on the NOPR. The Department will work to meet the August 2007 deadline for issuing a final rule, although that deadline is aggressive, and whether the Department will meet it will be dependent on a number of different factors, including many factors external to DOE.

The CHAIRMAN. But they had obvious concern as to when, if ever, these were going to be acted upon, or when a real application would be requested from them. So, the level of frustration, I think, has been growing on this, and I've used more than my time, so I'll defer to Senator Domenici.

Senator DOMENICI. Senator, I don't think you've used too much time, so I wouldn't hold you to time because this is really a shame. I had somebody bring us the bill we drew, that you and I and others worked so hard on. If you go through it, you'll find that there were plenty of active mines, if we were looking to fill this bill with projects, we could have put them at 20 places. The projects for ethanol, projects for this, projects for that, and we could have provided loan guarantees at 40 places, and we could have done all of these

kinds of things that we used to do, when you were putting projects in a bill, and calling for their fulfillment.

We thought that we were going to quit doing that, and put one section in a bill. It couldn't be more important to this bill, that that whole section, the section is called, listen, "Incentives for innovative technologies." Now, there's no other place in this bill where we promote incentives for innovative technologies in the way we do in this section. It states in it all of the kinds of things we're trying to do as a Nation. To break through in technology, break through in coal, break through in the things the President announced in his speech.

It says how they can get done by way of capital being furnished by the Federal Government. We have been fighting now—today is 18 months, I looked it up—this bill is 18 months old. We don't have an office, a formal office yet, and we don't have any personnel out there looking to give capital to people who want to build things that are new and different as part of this war that we're involved in, in breaking that stranglehold of the gasoline and crude oil.

Now, Mr. Secretary, I'm not going to take long. I'm just going to tell you that we have fought like crazy, and we get a piddley little $4 billion in the CR, you come along and I think in your budget you've given us $8 billion? Nine billion dollars, and everybody says, "Aw, that's wonderful." Let me tell you, you just sit down with a few experts and ask them, "What are we going to probably fund?" With $8 billion or $9 billion, if you're talking about the spectrum across America, where they're going to be asking, is nothing. You're going to have to find a way to do three or four times that amount, and do it right. Now we've gotten you the money, there's no excuse, and I don't say you were ever looking for an excuse, the White House was looking for excuses. They didn't want to do it. OMB didn't want to do it. But Mr. Portman told me—is that his name?

The CHAIRMAN. Portman.

Secretary BODMAN. That's his name, yes, sir.

Senator DOMENICI. He didn't want to be blamed for this, he just said, "Please, I'm not to blame." Well, I said, "Maybe it's because you came too late, but your OMB is to blame." "Well, I will undo it, and fix it where we can do it," said he. So, and, this doesn't cost the Treasury any money, I remind everybody. The way the bill's drawn, they participate in a law where they've got to pay for these by way of putting up their own money as the part of the guarantee. I don't think we could have a better deal to break the stranglehold of old technology, trying to run a modern competition.

I beg you, Mr. Secretary, to get on with implementing this section.

The CHAIRMAN. Let me next go to Senator Akaka.

Senator AKAKA. Thank you very much, Mr. Chairman. I want to commend you for holding this hearing so quickly after the release of the President's fiscal year 2008 budget on Monday.

I also add my welcome to Secretary Bodman, and to tell him I really appreciate the timely manner in which your budget has been done. I look forward to working with you, and I want to ask you, Secretary, and to tell you that I'm pleased to see the Department has established an office of loan guarantee to oversee the loan

guarantee applications that were in title XVII of the Energy Policy Act of 2005 that we're talking about.

There were also two loan guarantees, programs in title XV, sections 1510 and 1516, that were for biomass, municipal solid waste, and sugarcane-ethanol. But, I don't see them in a budget. They're not mentioned in the innovative technology loan guarantee program.

My question to you is: what can you tell me about where I might find these loan guarantees from title XV?

Secretary BODMAN. I may be mistaken, but I believe they are available under title XVII, sir.

Senator AKAKA. Well, let me be sure that I understand, and I'm glad you mentioned that. Title XV loan guarantees for sugarcane, biomass and MSW——

Secretary BODMAN. Right.

Senator AKAKA [continuing]. Are eligible under title XVII?

Secretary BODMAN. Right.

Senator AKAKA. Loan guarantee program, called Innovative Technology Loan Guarantee Program. Are they covered under that program? You just said yes.

Secretary BODMAN. I believe so, yes sir.

Senator AKAKA. Oh, terrific.

That fiscal year 2008 loan volume limitation of $9 billion is enough to cover the title XV and title XVII loan guarantees, is that enough?

Secretary BODMAN. I can't answer that, in all sincerity, Senator, until I see them. I have not seen the pre-applications, we've had 100 expressions of interest; for the reasons that I mentioned before, we simply have not had the wherewithal to start. We've created the office, but in order to staff it and run it and function it requires some financial resources, which have not been forthcoming. Hopefully they will be, and then I can answer your question more effectively.

Senator AKAKA. Well, I really appreciate your clarification. As you know, these loan guarantees are important to diversify fuel sources, and for advance technology businesses in my State, and others.

Secretary BODMAN. Yes, sir.

Senator AKAKA. As you may know, Senator Murkowski and I share an interest in the methane hydrates program, which was reauthorized in EPAct. Last fiscal year, the program was zeroed out, and again in this fiscal year, it's not funded.

Now, given the President's commitment to reducing our dependence on foreign oil, and the expected long-term decrease in the supply of natural gas, what does it take to keep our investment going?

Secretary BODMAN. I believe, sir, that you're talking about a hybrid——

Senator AKAKA. Gas.

Secretary BODMAN [continuing]. Battery development?

Senator AKAKA. This is methane hydrates.

Secretary BODMAN. Oh, hydrates, methane hydrates.

Senator AKAKA. It is gas technology, right.

Secretary BODMAN. I'm sorry, methane hydrates; forgive me, I misunderstood you.

That falls in the category of oil and gas development, and this President believes that given the current prices of $60 oil, or $7.5 per MCF natural gas, that there's plenty of incentive for developers to proceed. I agree with you that one might make an exception for the methane hydrates, which do require a research effort in order to make it more effective, but that is something that this administration views as plenty of incentive to proceed with whatever work needs to be done.

Senator AKAKA. Thank you, my time is expired.

The CHAIRMAN. Senator Thomas.

Senator THOMAS. Thank you, Mr. Chairman, welcome, Mr. Secretary.

In some ways it seems like we're going back to the same game we played last year. We talk a lot about alternative fuels, which we should, and they'll make a real difference in the world. We need in the short time, however, to make fossil fuels cleaner and more efficient. Please explain why fossil fuel energy funding for national research is being decreased, rather than increased.

Secretary BODMAN. Same answer; the position of this administration has been that there's plenty of incentive in the system now. There's a great sense of commitment to coal, and there is significant commitment in this budget for clean coal technology. We've offered up, I think, a billion dollars of loan guarantees that were done, or tax credits that were done. There will be another $600 million done this next year, during this fiscal year, so there have been significant commitments to coal technology, clean coal technology, and then there's the FutureGen Project where we have increases as well.

Senator THOMAS. We haven't seen much impact. Section 413 of the Energy Policy authorizes Federal cost-sharing for IGCC in the West. We needed to pursue that with LNG terminals in highly populated areas. The Federal Government needs to support these areas. Why doesn't the budget request funding for section 413 implementation?

Secretary BODMAN. It's strictly a matter of priority, Senator, I can't give you the specifics on that. If you'd like, I'd be happy to give you a more thoughtful response, but I can tell you that it's a matter of priority, where we put our money.

So, it's a matter of trying to put money in the most effective places that will simultaneously improve our energy and national security on the one hand, and deal with greenhouse gas emissions on the other.

[The information follows:]

The western integrated coal gasification demonstration project authorized under EPACT section 413 will be eligible for funding under the next round of the Clean Coal Power Initiative (CCPI). The CCPI program, which is run by the Office of Fossil Energy, expects to issue the next solicitation for demonstration scale projects in FY 2008.

Senator THOMAS. Yeah, I can't think of anything more efficient than going where the coal is, and getting it to where the market is, by transferring it into a clean product. That's exactly what we're talking about. DOE has manufactured $257 million for themselves out of this program, Clean Coal Initiative; $108 million for CCT into FutureGen, and the remainder will go back to the Treasury.

Now, I don't understand the disregard for this congressional intent to work on this very important, close-range thing of converting coal to another source to get to the market.

Secretary BODMAN. We believe that we are honoring the intent of Congress, the deal with coal as an important component——

Senator THOMAS. Have you got any loans, or incentives going to coal conversion?

Secretary BODMAN. We have, I just mentioned that we have, when you say—to coal conversion?

Senator THOMAS. Yes.

Secretary BODMAN. No, sir. That would fall in the same category that we just have been visiting with your colleagues on the committee about.

Senator THOMAS. But we're not doing it.

Secretary BODMAN. Senator, we are not doing it because I don't have a loan guarantee office set up and funded.

Senator THOMAS. I know. I suggest that you do.

Secretary BODMAN. We have asked for it. It's in the budget proposal for 2008, as I mentioned. We attempted to get in 2006 a reprogramming so I could set up the office, and it was denied by Congress. I don't know how to try any harder than I have tried.

Senator THOMAS. We have it in our policy, our energy policy, to do that.

Secretary BODMAN. Yes, sir.

Senator THOMAS [continuing]. It would seem to me, you'd find a way, within this large administration of yours, to be able to do that.

Finally, we want to convert some more of those coal, specifically to interstate pipelines and electrical infrastructure. How much money is requested for those kinds of items?

Secretary BODMAN. There is money requested for the support of our electricity office, which has responsibility for siting and developing the right-of-way for transmission of both electricity, as well as for other forms of energy. There is funding in the bill for that within the electricity office.

Senator THOMAS. Well, in closing, I'd still think that we have to give more attention to the energy that we now have available to fill the need between now and when we get the alternatives. It seems like all of the emphasis goes on these famous alternatives for the future, and not very much for the things that we know how to do, and could do, immediately, to fill this 10-year deal.

So, I hope that you'll get some more——

Secretary BODMAN. I take your point, I will certainly do that. Thank you.

Senator THOMAS. Thank you.

The CHAIRMAN. Senator Dorgan.

Senator DORGAN. Mr. Chairman, thank you very much. We have limited time, necessarily, but I appreciate, Mr. Secretary, your being here to answer questions.

Let me make just a quick comment. I'm a strong supporter of the renewable sources of energy, and the alternative sources of energy: bio-fuels, wind, solar, hydrogen-fuel cells—we need to work very hard on all of those issues.

I'm concerned about the recommendations with the PMA's, and purchased power; some of them hearken back to the philosophy of some, previously, who would like to sell the PMA. Some parts of the country have constituents, including mine, that benefit from the grand bargain that was made a long, long time ago, saying that you play host to certain long-term floods, and you can use hydropower in a region with low-cost power, permanently. I have no problem with that; in fact, I support that, and don't propose that it be changed. So, the PMA issues in the budget are difficult, and we need to change those.

My colleague from Wyoming raised the question of fossil energy, and particularly coal. We need to find a way to produce electricity from zero-emission coal-fired generating plants, we need to be able to effectively go from coal to liquids, and find ways to sequester emissions and all of those issues. My colleague raised a valid point: we have some Clean Coal Technology funding that is going to be rescinded—I know there are other coal issues in the proposal—but I do think Senator Thomas raised an important point about that. Wind research, down a bit, I think it ought to be up.

Having said all of that, I want to ask you a more general question—not so much about this budget, because this budget represents a menu of things, and I'm trying to figure out where we're headed. We're talking about where we have plans for where you want to be 50 years from now with respect to nuclear warheads and the design of new warheads, safer and so on and so forth. We talk about 50 years from now, what the circumstance will be with the Social Security trust fund, and all of those issues.

So, where are we going to be 40 or 50 years from now, with respect to energy use? What would be the predominant energy use for vehicles in this country? What will be the predominant energies for the production of electricity, and so on? How will we do that? Does the Department have a destination in mind? If so, I'd like to understand that. So, as we put together a menu, we develop a national goal.

The reason I ask the question is I'm a big supporter of hydrogen fuel cells in the future, of conversion of our vehicle fleet to hydrogen fuel cells. But you can't get there with baby steps. You've got to decide, all right, here's the destination, and here's the way we move toward that destination. I know the President supports that, but his recommendations have been very timid, in fact, rather than big and bold.

So, what do you see 40 and 50 years from now, with respect to the menu of energy use that we aspire to achieve?

Secretary BODMAN. First, let's talk about electricity generation. We're talking about doubling the demand for electricity over the next 20–25 years in this country. My view is that we can't accomplish that without having nuclear power. We can't accomplish it, certainly, in an environmentally friendly way, without having nuclear power. We have to—simply have to—find ways of developing nuclear power. We're working on every way that I know how, that we know how, in order to accomplish that.

I do believe that coal will play an important role in the future. But that will depend upon the sequestration of carbon dioxide. We've got seven partnerships that we have funded, that are part

of the research program of this Department. Those are ongoing to work in seven different geographic locations throughout the country. We are hopeful that we will then make a determination of where can we sequester carbon dioxide, and where we can effectively use coal.

Senator DORGAN. But is this just an inquiry about whether we can use technology to get to a zero emission plant, using coal? Or is it a destination? It's a major effort to decide to do that.

Secretary BODMAN. It's a major effort.

Senator DORGAN. All right.

Secretary BODMAN. We've got $1 billion committed to the so-called FutureGen Project. We've had requests from, I think, 15 different communities. The Department has winnowed those down to four; two in Illinois, and two in Texas, that we are working on that were selected, and we will then be working on a joint basis, I think it's roughly three-quarters Government funding, one-quarter private industry. We're finding a lot of interest—nine companies are now a member of this, and so this is our goal. It is research, however, and it is something that we have to demonstrate that we can do.

The goal of FutureGen is to create a process that will convert the energy that is in coal into a stream of hydrogen. You can then either burn the hydrogen, to create electricity, or you can use the hydrogen directly as a fuel in vehicles.

I am personally committed to do that kind of work, and I don't know how to do it any faster than we're doing it.

Senator DORGAN. I asked a very broad question, and I understand this isn't an appropriations hearing, but the menu of choices for spending on all of these issues ought to relate to relate to some destination that we all have in mind: where are we headed? And how are we going to get there?

Secretary BODMAN. Right.

Senator DORGAN. As opposed to just shopping around, you know, it seems to me that you ought to decide, "Here's the goal," out there, at some distance, and then move toward it. I think that is a substantial increase in nuclear, try to see if we can do zero emission coal-fired plants, or use fossil fuel——

Secretary BODMAN. That's correct.

Senator DORGAN [continuing]. In an environmentally-friendly way. We haven't talked about vehicles, but let me ask the question: could you send to this committee, your analysis, your broader analysis, in response to my very general question? Where do you see us 40 and 50 years from now? What are we aiming for? What's the destination that you would persuade this committee to try to aspire to achieve? Would you be willing to do that?

Secretary BODMAN. I would be happy to do that.

[The information follows:]

Predicting "where we are going to be 40 or 50 years from now with respect to energy use" is indeed a challenge. Who in 1957 could have predicted that between that time and 50 years hence we would have put men on the moon and brought them safely back to Earth; the internet; cell phones in the place of the single black telephone that most households had; color televisions with access to hundreds of channels instead of the three or four that could be accessed on the single black and white TV most households had, not to mention TV remote controls; computers, including laptops, as ubiquitous now as "record players" were back then and so on? In Feb-

ruary 1957, it would be another eight months before the Space Age officially began with the successful launch of Sputnik by a country called the Soviet Union. In 1957, polio had been conquered for only three years. I might note that in 1957, it would be another 16 years before the beginning of the Middle East Oil Embargo and another 20 years before the Department of Energy would be created.

With that backdrop, let me offer some thoughts about where we need to be in the next 40–50 years and what the Department is doing now to get there. First, we need to increase our energy supply options and reduce dependence on oil through reliable, clean, and affordable energy sources. These options include biofuels and other advanced liquid fuels, renewable energy from solar and wind, advanced nuclear power, zero-emission fossil electricity generation, and potentially fusion energy. Second, we need to create a more flexible, reliable, and high capacity U.S. energy infrastructure including a modernized electrical grid, liquid fuels system, and future hydrogen fuel system. And lastly, we need to make dramatic improvements in energy efficiency.

Underlying these needs for advances in energy production, delivery, and use are crosscutting and enabling science and technology opportunities and challenges. Fortunately, our own Office of Science is leading the Department's effort to address many of the elements required for a decades-to-century energy security strategy. A key strategy used by the Office are workshops, in partnership with DOE's applied program offices, that engage the broader scientific and technical community to help identify research directions to address these cross-cutting and enabling opportunities and challenges.

The first of many such "Basic Research Needs" Workshops was held in October, 2002. It took aim at the overarching challenge of applying the latest 'nano-, bio- and info-' science discoveries to revolutionizing production and use of energy. Enabled by the President's American Competitive Initiative, the Office of Science continues to move forward in addressing many of the major research challenges that lay before us. Let me give you just a few examples of our efforts as we look towards the nation's future energy solutions:

> The first energy technology-specific workshop was on Hydrogen Production, Storage, and Use, and was held in May 2003, after the President announced the Hydrogen Initiative in his 2003 State of the Union address. This workshop identified fundamental research needs and opportunities in hydrogen production, storage, and use with a focus on new, emerging, and scientifically challenging areas that have the potential to significantly impact the science and technologies for a "hydrogen economy." In such a world, by the middle of the twenty-first century, an ample and sustainable supply of clean burning hydrogen could become the universal energy carrier.
>
> To tackle energy challenges at the smallest scales, the Office of Science cosponsored a workshop—with the interagency National Nanotechnology Initiative—on Nanoscience Research for Energy Needs in March 2004. This workshop identified nine energy research targets including: highly selective catalysts for near-zero waste and near-100% efficient manufacturing processes, harvesting solar energy with 20% power efficiency and 100 times lower cost, solid-state lighting that uses a fraction of the power used by conventional lighting, low cost fuel cells, batteries, and supercapacitors from nanostructured materials. Advancements in nanoscale science has great potential to impact the development new and revolutionary energy technologies and bring significant improvements in energy efficiency and manufacturing processes.
>
> One of the challenges we face with renewable energy technologies like wind and solar is that they are intermittent. The key to baseload electricity generation from wind and solar is energy storage—to level the phased nature of these energy sources and meet off-cycle demands. In April of this year, the Office of Science is holding a workshop on the Basic Research Needs for Electrical Energy Storage to identify key basic research directions that could provide revolutionary breakthroughs needed for meeting future requirements for electrical storage. Advanced energy storage technologies will have a significant impact on efficient utilization of electricity generated from these renewable sources and others and bring greater reliability of the U.S. electric grid.
>
> Two additional types of large-scale, environmentally-friendly, energy technologies the Department is pursuing for future base-load power sources are advanced nuclear fission and fusion energy. DOE's Office of Nuclear Energy is partnering internationally through the Global Nuclear Energy Partnership (GNEP) to develop advanced nuclear fission reactors and the technologies necessary to move towards a closed nuclear fuel cycle. The Office of Science is a partner in ITER, an international fusion research project to demonstrate the scientific and technology feasibility of fusion power. Several workshops held

over the past three years have identified critical research and development directions for a path forward in both fission and fusion energy, including the April 2004 workshop on Advanced Computational Materials Science: Application to Fusion and Generation IV Fission Reactors and the Basic Research Needs for Advanced Nuclear Energy Systems held in July, 2006. Advanced nuclear power and fusion power both hold the promise of an abundant fuel supply with zero air emissions.

Advanced grid technologies to take advantage of new power technologies and move towards an improved future grid system are also being developed at DOE. Superconducting grid technology, for example, has a huge potential for increasing grid capacity, reliability, and efficiency to meet the growing demand for electricity over the next century. Superconducting technology also was the subject of a May 2006 workshop held by the Office of Science together with DOE's Office of Electricity Delivery and Energy Reliability. The results of this workshop support the idea that such grid technologies, together with fission and fusion power plants, could form a strong backbone by mid-twenty-first century for the U.S. grid or even a global grid.

I hope that these examples give you a sense of where we could be 50 years from now. Of course, we expect our basic research and applied technology programs, especially Presidential initiatives such as the Advanced Energy Initiative and the Twenty in Ten Initiative, to provide key energy innovations during the next 50 years including in the areas of alternative fuels such as cellulosic ethanol and other biofuels, advanced vehicle technologies such as plug-in hybrids, and advanced solar energy technologies. Just as most Americans in 1957 could probably not come close to envisioning the huge advances that would be evident in 2007, so, too, we today can probably only just begin to imagine what scientific advances will have in store for Americans 50 years from now.

Secretary BODMAN. I would remind you that we will be dependent on free markets to make determination as to which is more cost-effective. Which approach is more environmentally effective? There will be uncertainties, as we start to talk about forecasting, something going on 50 years from now. I will tell you what our hopes and our aspirations are.

Senator DORGAN. Well, Mr. Secretary, we make markets, in many ways, by certain choices that we decide to follow. I'd be very uncomfortable with the notion, "Well, whatever the market suggests, that's where we'll head." Let's decide where we're going to head, based on our choices, and you'll bring market prices down, based on investment and choices the Federal Government will make. But, that's a discussion we'll have at a different time, I guess.

The CHAIRMAN. Senator Craig.

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

Mr. Secretary, again, thank you for being with us. Some preliminary comments.

Senator Dorgan's frustration, and mine, are not dissimilar. It's bringing us together to look at something we can do in the immediate sense that dovetails quite responsibly with what the President has proposed in his State of the Union remarks to reduce our dependency, and to get something moving in a timely fashion that demonstrates that capability.

Having said that, and reviewing your budgets, you and I spent a little time last year talking about Bonneville power, and secondary revenues, and we're not going to spend any time doing it this year, OK? OMB puts it back in, you shouldn't make apologies any more, we'll just take it out, OK?

You have to have certain marks to get your budget in line, so you put AWAR in it as a revenue stream—I wish it were; it probably won't be. We put Bonneville in as a revenue stream; it won't be.

We'll take those out. We'll no longer have a discussion about it. Nor should any apologies be made. I understand what OMB does to your budget, and we'll leave it at that.

I'll not go any further into loan guarantees, you've heard the frustration of this committee, and it is significant. If something has not yet been done, nor has there been the necessary programming to accomplish it.

There is a difference, in my opinion, between research and loan guarantees. Much of what is in the application of the 120 entities that have come forth, requesting a grand total of $50 billion—or somewhere in that range—is it research in many ways that has already been done? Some of this is to come off the shelf and go to a commercial level through a loan guarantee. That is significant.

As it relates to where we would like to take this country, with all of the new technologies, and all of them being very clean: if there is any climate change title in EPAct, it's title XVII. And yet, 18 months later, we talk about climate change, we effectively have not been able to muster up whatever it takes, with you pointing fingers at OMB, or we pointing fingers at you, or you pointing fingers at us, to get on with the business at hand.

Long-term research is one thing. Being able to take research that is nearly completed, move it to the market, refine it through the process of loan guarantee, stand it up in a commercial value, is—in my opinion—a significantly different thing. I'll leave it at that. I share the frustrations of the chairman and the ranking member, my colleague from Wyoming. I'll leave it at that, Mr. Secretary.

Nuclear energy: I smile at the budget level in general. Clearly, we need to continue to drive in that area, and we'll be very supportive, I think, of those efforts. We may rearrange them a little differently than you've proposed them, but I think we're in sync as it relates to that.

I guess my greatest disappointment, Mr. Secretary, in overall budgets or menus is in the hydro, geothermal, nuclear energy programs, nuclear university energy programs that have largely been zeroed out. I hope Congress can fix that shortcoming.

Secretary BODMAN. May I make a comment, Senator?

Senator CRAIG. Please.

Secretary BODMAN. On that, I just would ask that, in looking at the support for universities for nuclear engineering departments at universities, that the committee look at the totality of the support that is coming from the Energy Department. If you all are inclined to fund the various initiatives that we have there, a big part of the work—or a significant part of the work—would be done at universities in GNEP.

Senator CRAIG. No, I appreciate that.

Secretary BODMAN. It's important to look at, if you would, the totality of it. Because there is plenty of reason to suggest that we have an increase in support for universities, even though the report, the funding for fellowships, scholarships, and so forth, has been reduced, or has been zeroed out.

Senator CRAIG. Thank you.

Mr. Chairman, let me conclude with this comment. Last week, really one of the grand old gentlemen of foreign policy was here on the Hill to speak to the Senate Foreign Relations Committee. Usu-

ally when Henry Kissinger speaks, we all listen closely—sometimes he's a little hard to understand, and maybe that's why we listen a little more closely. But usually, we listen closely because he's a pretty wise fellow, who has a fairly broad perspective of the world, and can bring it to us in a way that we readily understand, and that in a bipartisan way, we generally appreciate.

Let me refer to a comment he made in the text of his broader comments. He said—and he's speaking of the current debate on the floor, the current frustration of the American public, on our foreign policy in Iraq. And he says, "They are there," meaning our troops, "as an expression of American national interest to prevent the Iranian combination of imperialism and fundamentalist ideology from dominating a region on which the energy supplies of the industrial democracies depend."

This country is caught up in a very critical debate at this moment. Underlying all of it is a great dependency on an energy supply flowing from a region of the world that is increasingly unstable.

Part of what we did in 2005, and what we're doing today, is to offset some of that dependency. I have yet to feel the sense of urgency, the sense of wartime mentality that it takes us to make these quantum leaps forward. A focusing of our resources, and our talents, in a way that makes these things happen sooner rather than later.

I hope stability continues in that region while we crawl toward some form of energy independence. We are not running toward it, we are not racing toward it. Our only salvation will be stability in the world until we get there. So, I would hope that the work of this committee, your work, and the work of this administration expresses a sense of urgency that has yet to be felt by most of us who are involved in this issue.

Thank you.

The CHAIRMAN. Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman.

Mr. Secretary, welcome. You heard Senator Craig's comments with respect to Bonneville, and I think he said it very well for me and Senator Smith, and our whole, you know, region. We are just not going to accept Bonneville being used as some sort of payday loan program for the administration; that's really what this is all about. Since you and I have had this vigorous debate in the past, I wanted to bring you a set of numbers that I thought perhaps you could look at in the days ahead.

We, of course, believe that Bonneville is paying its bills. We are responsible consumers and businesses; we pay our bills. In fact, we pay our bills and more. Bonneville has repaid almost $1.8 billion of debt in advance of what is due. This includes over $342 million in fiscal year 2006. So, since you were here last year, advancing the proposal that all of us in our congressional delegation—all of the Republicans, all of the Democrats have opposed—Bonneville has repaid an additional $342 million in debt, ahead of schedule.

So, I would just hope that you would see, once again, the intense feelings in our region on this, shared by every Republican, and shared by every Democrat. We will have further dialog on it.

Secretary BODMAN. I am aware of the intense feelings, sir.

Senator WYDEN. Very good.

Let me ask you a question, and I'm just trying to sort it out. As you know, our part of the world is making a big effort to strengthen our economic sector as it relates to family and wage jobs, and pulp and paper is a very big industry in my State. And they are quite concerned about the cuts in funding for the programs that relate to industrial efficiency.

So, then we came upon a document. We were just going through your materials—and I'll get this to you, it's a U.S. Department of Energy document—and in it you say, in the next 24 months, there are going to be efforts to do energy-efficient assessments in China. So, what we're trying to figure out, is how does it make sense to cut the efforts that we so badly need in key industries in our country, like pulp and paper, and then somehow start new programs that will benefit those that we are up against in very tough global markets?

Secretary BODMAN. My understanding, sir, is that the request for industrial technologies, the funding requested for 2008 is the same amount that we requested last year, $46 million. We are working with China, in terms of trying to develop their attitudes and approaches on energy efficiency, as well as the cleanliness with which they're using coal, which is one of the dominant sources of energy in China.

We are trying to do both, but I don't view it as cutting something here versus the efforts we're making in China. We're trying to do both.

Senator WYDEN. What I think is troubling to our key industries, is that the industry-specific program, and that's why I cite——

Secretary BODMAN. The industry-specific program in the paper industry, sir?

Senator WYDEN [continuing]. Is cut to—yeah, there's a cut in forest and paper products.

Secretary BODMAN. I simply don't know about it, and I'd be happy to respond to you on that.

[The information follows:]

The Office of Energy Efficiency's Industrial Technologies Program (ITP) has historically worked with the eight most energy-intensive manufacturing industries to research, develop, and implement advanced technologies that save energy, cut costs, and reduce emissions. While these activities have proven successful in reducing overall industrial energy consumption, the industrial landscape is evolving rapidly and industry is facing tougher challenges such as rising fuel prices, supply volatility, and global climate change. In order to more quickly introduce research and development (R&D) benefits to the industrial market and accelerate new technology deployment, ITP is focusing its technology research to be more broadly applicable to the U.S. industrial base. Thus, R&D funds in the Fiscal Year 2008 budget request will partially shift from specific industry areas to more crosscutting and higher impact energy-intensive processes, common to the industrial sector as a whole.

ITP has identified four critical technology areas (Reactions & Separations, High Temperature Processes, Energy Conversion Systems, and Fabrication & Infrastructure) for research that are essential to traditional energy intensive industries that have been targeted by the program and applicable to a much broader array of industry members. These technology areas were identified using ITP industrial analyses, industrial stakeholder roadmaps, and other feedback.

Senator WYDEN. Let me just read you the cuts in the specific programs for our industries; forest and paper products, steel, aluminum, metal casting, glass, chemicals, mining—each of those is cut. We could have a debate about the overall level, but I would just hope that once again, you could work with us on a bipartisan

basis. Because when our industries—and all of us share these concerns, we're doing so much heavy lifting to be energy-efficient—to look at these documents and say, "Well, we're going to have a new effort in China," when pulp and paper is such a concern in our country, I hope we can revisit it.

I've got 20 seconds to follow up on the question Senator Dorgan talked about and just give you an opportunity to share your views. I think this country wants the Congress, again, on a bipartisan basis, to be far bolder, and far more aggressive, in terms of our energy future. And I think we can do a lot, lot more, really, because this is a national security issue.

What do you see as the boldest features of the President's energy proposal? What are the features, in your view, that really push all of us together to a more secure energy future?

Secretary BODMAN. The boldest proposal relates to replacing 15 percent of our gasoline with renewable energy, or alternative forms of energy, but it's, in effect, renewable energy, and to do that in 10 years. That's a major project. It will involve in all likelihood, the development of cellulosic ethanol, which we haven't done yet, to make it cost-competitive. The cost of manufacturing methanol or a fuel, a replacement fuel today, is about $1.10 a gallon, the cellulosic ethanol is about $2.20 a gallon, so we've got to cut the cost in half, it's a major undertaking. Part of this budget requests funding for that endeavor.

We're also—having had efforts in the past where we have worked with industry—and I think, sir, as a venture capitalist, long before I had the brilliant idea of coming to Washington to help run the Government, and I will tell you that this is the first time in the 43 years that I have followed venture capital, and have been having some interest in it, that the venture capital community of this country are putting big money into energy. They're putting it into ethanol, cellulosic ethanol, they're putting it into photovoltaics, they're putting it into wind energy. I am very encouraged by the new companies that are being started and also by the efforts that these higher prices have stimulated, a lot of economic activity.

Senator WYDEN. My time is up, I would only say, Mr. Secretary, we all are pleased to see what the private sector is doing, and you're absolutely right about venture capital. I just think the Government is way behind the private sector, way behind the American people, and we could be doing more, and I look forward to that discussion.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Corker.

Senator CORKER. Mr. Secretary, thank you for this presentation. Mr. Chairman, for the time. I want to applaud your efforts on clean coal technology, I come from a State with TVA, with Oak Ridge, with an abundance of coal, we have companies there pursuing clean coal technology, and I want to thank you for your pursuit and what you're doing in that regard.

I was interested in the comments that Senator Craig made, and Senator Wyden, and I would like to, if possible, spend some time with your staff, I know I'm new on this committee—both talking a little bit about the intricacies of what we're doing energy-wise,

and I hope you'll make them available, the tax credits that we're actually using to stimulate investment, and then the loan program that's been so highly discussed. I was baffled that a million-dollar reprogramming effort would slow down an $8 billion loan program. A staff member sort of made me aware of how that works here in Washington; I'm sure that'll be rectified soon. But I'd like to talk a little bit about—we talk about the "no cost" of that, because of the way it's designed—but I'd like to talk to a staffer if I could, a little bit——

Secretary BODMAN. Of course.

Senator CORKER [continuing]. The intricacies of that, and so if you all could make that available.

Secretary BODMAN. Be happy to make that available, we'll contact your staff.

Senator CORKER. Perfect, perfect.

Secretary BODMAN. Make arrangements for that.

Senator CORKER. To be parochial, and get back to Tennessee, Oak Ridge is a tremendous asset to our country, and certainly to our State, and I'm convinced that Oak Ridge is going to be a big part of our energy security, homeland security into the future. I know that there's a huge push to make them a super computing entity that really can help our Nation, on many fronts, and I know that they have a program right now with the Cray computers to, in essence, go to a lease-to-own program, I noticed that the funding that is put in this budget to help make that happen is actually below the 5-year profile. Typically, lease-to-own efforts like this take place over a 3-year period, I don't know if you know the specifics of that, but it looks like we may, in efforts to cause our budget to not look as extraordinary as it might be, it looks like we might be slow-walking that effort. I don't know if you might respond to that.

Secretary BODMAN. Well, we're certainly not—I can't comment on the specifics of Oak Ridge. I can tell you that the science budget—which is where the support for the supercomputing effort comes from—is very important to the Department. We've got a very significant increase in the funding that's there, that will be forthcoming if the Congress passes this 2008 budget. I don't understand why we would have the focus on efforts broadly—Oak Ridge is one of the leaders that we have in the country in supercomputing, so I'd be happy to try to take that question on the record, sir.

[The information follows:]

While many of our lease-to-own agreements for high performance computers have been for three-year terms, there is no "one-size-fits-all" term for managing these unique resources. Our recent experience with the Power 3 at National Energy Research Scientific Computing Center (NERSC) has proven that the three-year rule can be extended when circumstances show it is prudent. The Department has determined that the Leadership Computing Facility (LCF) at Oak Ridge National Laboratory (ORNL) is better suited to a five-year term for a number of reasons. First, the challenges of petascale computing and the thousands of multi-core processors contained therein are significant. This will be the research community's first real experience with this dramatically different computing environment. The research community will need sufficient time with this machine to effectively utilize its potential and prepare to push beyond one petaflop to the next generation of machines. Second, the Defense Advanced Research Projects Agency (DARPA) High Productivity Computing Systems (HPCS) program is expected to begin to deliver that next generation of machines in the FY 2012 timeframe. The Department is convinced that the ORNL LCF machine will continue to be a vital tool for leadership com-

puting for at least the next five years, making the five year term a reasonable and responsible management decision.

Senator CORKER. Well, I appreciate that, and I think with my newness on the committee, we'll just set aside some time with your staff to go through those details, and thank you very much for your testimony.

Secretary BODMAN. Thank you.

Senator CORKER. Thank you.

The CHAIRMAN. Senator Menendez.

Senator MENENDEZ. Thank you, Mr. Chairman.

Mr. Secretary, thank you for being here.

Secretary BODMAN. Yes, sir.

Senator MENENDEZ. I look at the budget, and I certainly appreciate the increase in funding for the Office of Science, I think that's a positive thing. I look at the administration taking, what I believe is a small step, in the right direction, with increases in energy efficiency and renewable energy relative to last year's request, and I think the Congress is taking a bigger step in the CRs, so I hope we can continue that momentum.

I want to join in Senator Craig's comments about a need of the sense of urgency as it relates to our pursuit of energy independence. I think we need a greater sense of urgency, and I want to also associate myself with Senator Wyden, in terms of the boldness of the type of energy programs that we pursue in order to achieve energy security in the country.

But, for the purposes of today's hearing, I just want to ask you about what I do believe is one of the big losers in the energy budget—something that, certainly in my home State of New Jersey is an incredibly important program, and that's the weatherization program. Here's a program that helps people that are most in need of help: people in the lower levels of economic opportunity in society. It helps the elderly, poor families with children, disabled; it makes sure they're warm in the winter; it saves money on their energy bills; it saves energy as a Nation; and I think it's one of the finest examples of how Government can help people while making society a whole lot better off. I think your own Department said it best in the flyer that it has, which says, "Weatherization works." Weatherization works.

Now, last year, the administration tried to cut this program by a third, Congress rightly rejected that cut. This year the administration wants to cut it more, by 41 percent.

So, Mr. Secretary, let me try to get a couple of things straight. In your budget justification, you state that the weatherization program saves households about $274 a year, is that correct?

Secretary BODMAN. I think it costs about $2,500 per household to do the weatherization, and it's roughly a 10 percent return.

Senator MENENDEZ. OK, as I look at the justification figures that the budget has, it says $274, but your fact sheet says $358 per year, creates an energy savings of $358 per year.

Secretary BODMAN. I can't respond—I'd be happy to reconcile that, sure.

Senator MENENDEZ. Well, we'd love to know.

[The information follows:]

For an up-front investment of $3,000 from the Weatherization Assistance Program, household first-year savings on energy bills is $358, on average. The $274 figure for first-year energy savings does not reflect the most recent forecast of fuel prices and was based on an earlier evaluation. The return on investment over the lifetime of the energy-saving measures is approximately $4,600, and the benefit-cost ratio is 1.53.

The cost-effectiveness of investing in Weatherization refers to the economic return relative to all of the Department of Energy's research and development (R&D) programs and technology investments, for each Federal dollar invested. Investments in energy efficiency and renewable energy R&D have multiplicative returns, such as improvements to appliances and the building envelope, that benefit the entire American population.

Senator MENENDEZ. We'd love to know what the difference is.

Secretary BODMAN. Sure.

Senator MENENDEZ. Because obviously it's part of a justification for the program itself.

Now, as I understand it, that $274 figure came from the Oak Ridge National Lab Survey of the years 1993 through 2002, is that right?

Secretary BODMAN. I just was handed a paper that suggests that we've had over 5.5 million American households participate in the program, and the average cost savings have been $358 per household.

Senator MENENDEZ. OK, that's what the flyer says.

Secretary BODMAN. That's the same number you have.

Senator MENENDEZ. So, that's good, because I think, ultimately, what it goes to show is that this is a program that is cost-efficient, and as you say, weatherization works.

Now, the reason I bring this up—in addition to the additional cut beyond last year's effort to cut—at the hearing last year, I asked you about the weatherization program, and you told me, "It's not a particularly good rate of return," I didn't understand that then, and I don't understand it now, I don't know if that's still your view. Because, as I look at it, Oak Ridge tells us that it's a $3.71 to every $1 spent by the Federal Government, a cost-benefit ratio. And when I look at it, I see, in the budget justification, I don't quite understand how we could say it's not efficient. If you look at a few different factors, one of them is annual carbon emissions, weatherization does better in 2030 than both hydrogen and biomass, under your own budget justification—two programs that see enormous increases in the budget.

Another is oil import reduction. Weatherization saves us 100,000 barrels of oil per day by 2030; it sounds pretty good to me. There's only one program that actually saves significantly more, and that's the vehicle technology, so when you look at all of the consumer savings that takes place, helping those who have some of the biggest struggles in our society, as it relates to staying warm, and at the same context, you see all of these different indicators from your own budget justification, speaking that it exceeds other programs that get huge increases. Why are we not funding the weatherization program at the level we should be?

Secretary BODMAN. It's strictly a matter of priority, Senator. I think it's a question that I carry around in my head, that we're spending $2,500 or $3,000 per household, and that we're getting a return of roughly 10 percent on our money. If you look at that on an after-tax basis, you know, it cuts it——

Senator MENENDEZ. Your justification says you get $3.7 dollars for every $1 you invest; that's far beyond a 10 percent rate of return.

Secretary BODMAN. No, sir. I mean, if it costs you $3,000, $3,500, and the savings are roughly $300, it costs you ten times as much as you are receiving. I don't know where the number, 3- or 4-to-1, comes from.

Senator MENENDEZ. Well, we're happy to go through it with your Department. I mean, Congress rejected it last year, I hope it rejects it this year. Otherwise we're going to tell 40,000 families in this country, "You can spend another freezing winter paying exorbitant fuel bills, simply because we don't believe this is a high enough rate of return," when in all of these different categories, the weatherization program exceeds beneficial outcomes, compared to others that have enormous increases.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Thank you, Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman.

And, thank you, Secretary, for being here.

Mr. Secretary, I do appreciate you being here, I know that these hearings on the budget aren't the easiest, and it's tough as we try to work through the priorities.

I will admit a little bit of disappointment in your explanation to Senator Akaka about the lack of funding for the gas hydrates, the methane hydrates research. A couple of years ago, we had an opportunity before this committee to present a legislation that Senator Akaka and I had worked about, and there was a great deal of excitement about the prospect of literally a thousand years of energy being supplied to this Nation through the prospect of gas hydrates. That technology is not advanced. Just because the price of natural gas is higher than what we were sitting at 2 years ago, doesn't mean that we shouldn't be encouraging that technology to advance.

I listened very carefully to your comments, Senator Thomas, about the frustration that, perhaps, as we move toward the alternatives and the renewables, in this transition time from the more traditional fuels, we're not getting the help and the assistance that we might need with the traditional fuels. We're focusing on the alternatives and the renewables.

Well, there are areas within alternatives and renewables—in my opinion, geothermal, ocean energy—where we're saying, right off the bat, "You're a loser category, we're not going to help with the funding for these projects," so we're in this transition, and we're not giving the assistance that we might possibly be considering for the more traditional fuels, and we're not doing adequate measure to advance us in that next generation of technology.

So, there's a frustration here, as we try to prioritize—it's difficult, but it's necessary. I would just put in, again, a pitch for the assistance that we had requested and received under the Energy Policy Act for the gas hydrates, as well as the more renewable alternatives that we're looking at with geothermal—great potential. Great potential for ocean energy. It's difficult as we look at that

and say, "Well, there's not going to be anything in the budget for that, for the short term."

I need to ask you a very specific question. Again, a couple of years ago, we were very excited, very enthusiastic about the prospects of bringing Alaska's natural gas online to meet the country's needs here, we were successful in passing that legislation, the State of Alaska is working through issues now, but in looking at the budget and the funding for fiscal year 2008, there is no funding for the Alaska Gas Pipeline Coordinator's Office.

This is going to be critical, and key, as we advance the prospect of this. Am I missing something in the budget? Is it there in some other area? What can we expect in terms of assistance on the gas line coordinator's office?

Secretary BODMAN. I think that the unfortunate situation is that, in Alaska, they have not gotten their act together to deal with this. We have not—to my knowledge—I think it's not there. The reason that it's not there is that we don't see the need for spending money on something that there isn't call for.

Senator MURKOWSKI. Well, that's a tough message to take home to the State, where they are working to try to put together a deal. If the legislature is successful, and the new Governor presents a plan that is going to work, a project that is going to work, and that is approved within the next, say, 9 months or so. If we don't have a Federal Pipeline Coordinator's Office in play, working the permits, working all of the other aspects that they have hoped to be doing, then it's going to be the Federal end that will be behind. There needs to be a coordination between what's going on with the State, as well as the Federal end, and we're going to miss a whole cycle if we don't fund this office in fiscal year 2008.

Secretary BODMAN. We will try to respond if they can get this done in the next 6 to 9 months, I would be very pleased.

Senator MURKOWSKI. I would be, as well.

One last question for you, Mr. Secretary, and this relates to Indian Energy Assistance.

Secretary BODMAN. Yes.

Senator MURKOWSKI. Also in the Energy Policy Act, we called for aid for the Native tribes to help develop energy resources on their native lands. Apparently, the Department is not seeking to fund this in the Act. There's great potential out there, as well in areas where they very seriously could use some assistance.

Secretary BODMAN. No, I'm sure they——

Senator MURKOWSKI. Why this lapse?

Secretary BODMAN. I'm sure they could, and it's purely a matter of priority. Not every title in the Energy Policy Act is something that we have pursued—that's one of those that fell off the table.

We have, however, funded through our environmental management activity, and through the Renewable Energy Office and the Department of Energy, tribal activities. We have tried to get ourselves better organized—the Assistant Secretary of Congressional and Intergovernmental areas of responsibility, Jill Sigal, heads up an internal group within the Energy Department—we're trying to serve, and do a better job of serving the tribes. But it has not been something that we felt, in terms of the Energy Policy Act, that ranked up there with other priorities.

Senator MURKOWSKI. Thank you, Mr. Chairman. I think we should give Senator DeMint a little extra time. Thank you.

The CHAIRMAN. The normal course would be to go to Senator Cantwell at this time; can you wait another 5 minutes?

Senator CANTWELL. Thank you, Mr. Chairman.

Secretary Bodman, it's good to see you, and——

Secretary BODMAN. Good to see you again.

Senator CANTWELL. Good to see your—I think that was humor this morning—about the brilliant idea of coming to Washington, or maybe it was very sincere.

Secretary BODMAN. Oh, it was meant to be humorous.

Senator CANTWELL. Well, we're glad, we're glad you're sticking with it.

Let me ask you a couple of questions, obviously my colleagues from the Northwest articulated our "Groundhog Day" frustration with revisiting, again, the BPA privatization by the administration, and I don't have to remind you, but maybe remind other people that this kind of impact to the Northwest, we believe, is in the hundreds of millions of dollars, and basically a rate increase, if it went through.

Do you think the Agency, and the administration really does have the—after looking at this for an hour—do you really think that the administration has the legal authority to do this? On its own?

Secretary BODMAN. I don't know the answer to that question. I do think that it is a—you and I had this discussion a year ago, as I remember, it is a little bit like "Groundhog Day", in that sense. I do think it's a prudent business practice, and paying down the debt, as long as you're not losing it, I think makes sense. I know your views on it, and I know the views of your colleagues on that subject.

Senator CANTWELL. Obviously we do have a different philosophy, and I have so many questions I want to ask you, so I won't belabor that, other than to say I think we provided you with information that says that the administration doesn't have the legal authority to do this, only Congress does. And so I was curious as whether you——

Secretary BODMAN. Let me ask—I don't know any more than I knew about it last year, and I will be happy to give you a more thoughtful response, as to whether we have the legal authority to do this.

[The information follows:]

The legal authority for the Administration's position is thoroughly set forth in the following letter and memorandum dated June 23, 2006, from Department of Energy General Counsel David R. Hill to Senators Burns, Cantwell, Craig and Smith.

Senator CANTWELL. Thank you.

I would like a response, as well, on your budget. I appreciate the Hanford Cleanup Budget, and would like to focus on how that is a priority for the Nation. Certainly it is of regional interest to Washington State. The tank waste cleanup budget, though, I think over a 3-year period of time now, has seen about a 25 percent cut, and even your own budget talks about 70—roughly 67 tanks are believed to have leaked about 1 million gallons of waste into the

soil, and that continued leakage could cause, obviously, incredible damage to the Columbia River.

So, why the 25 percent cut over several years' period of time? Why not move this tank waste while we're waiting for the vitrification plant? Why not move this tank waste into the double-shelled tanks that exist?

Secretary BODMAN. My understanding, Senator, is that all of the liquid that can be pumped, that can be moved, has been moved, and is moved into the double-shelled tanks. That the part that remains is sludge, and the goal is trying to move this and trying to build more double-shelled tanks in order to accommodate the sludge that's there. It would cost the Government a half a billion dollars and 8 to 10 years to build enough tanks in order to accommodate that. Hopefully by that time, we will have gotten the low active waste facility up and going, and we would be moving ahead with the program that we now have.

Senator CANTWELL. But, could we get in writing how much capacity are in the double-hulled tanks? Could we get that in writing from the Agency?

Secretary BODMAN. Sure.

Senator CANTWELL. Because, obviously the Tri-Party Agreement under this current proposal is not going to be lived up to, and so I know you're saying you think these numbers are better to continue on the vitrification plant. I'm looking at the million gallons that's leaking into the groundwater contamination, going toward the Columbia River, and obviously looking at this challenge. So, I think getting more specifics is very important to the Northwest.

Secretary BODMAN. I'd be happy to provide that to you.

[The information follows:]

CAPACITY OF DOUBLE-HULLED TANKS AT HANFORD FOR STORAGE OF HIGHLY RADIOACTIVE WASTE

Hanford has 28 double-hulled tanks for storage of highly radioactive waste. These tanks, known as double-shell tanks, have a total capacity of 32,260,000 gallons. The tanks currently contain 27,000,000 gallons of waste. Not all of the empty space can be filled with waste retrieved from the single-shell tanks, as some of it is needed for other purposes, including 1,200,000 gallons as emergency space, should one of the double-shell tanks start to leak, and 1,760,000 gallons of space spread among nine tanks, that cannot be used because doing so would mix incompatible waste types. Therefore, the currently available space is 2,300,000 gallons. Some of this available space is needed to accommodate transfer and receipt of waste in the tank farms and to operate the waste evaporator. Operation of the waste evaporator is important as it reduces the waste volume by boiling off excess water. Five million gallons of liquid waste currently stored in the double-shell tanks will be processed through the waste evaporator in order to free up an additional two million gallons of double-shell tank space to support single-shell tank retrievals.

Waste retrieval has been completed on six single-shell tanks. Retrievals are in progress at three. single-shell tanks, and double-shell tank space should be adequate to complete waste retrieval from these three tanks, and nine more, for a total of eighteen single-shell tanks that will be retrieved by the time the Waste Treatment Plant starts operation.

Senator CANTWELL. A couple of other questions. I think you heard a theme from my colleagues here this morning about the credibility of the President's State of the Union Address, and then the budget itself, in backing that up, and prioritization. So, I have a couple of questions for you.

One, would you recommend that the President sign an RPS, similar to what Senator Bingaman has proposed? A Renewable Portfolio Standard reduction, or basically using 15 percent of our energy from renewables on the electricity grid: would you recommend the President sign that?

Secretary BODMAN. I wouldn't. It seems to me that that is something that's best handled at the State level. The State of Texas, when this President was the Governor of Texas had a very high RPS, locally developed standard. Some States have very good access to renewable fuels, others don't.

Senator CANTWELL. I obviously disagree on that.

One other question, if I could.

Secretary BODMAN. OK, sure.

Senator CANTWELL. But, I really appreciate your indulgence in these questions.

Secretary BODMAN. Sure.

Senator CANTWELL. The other issue as it relates to this committee on a bipartisan basis—2005 legislation supported much higher tax breaks and incentives for renewables with the administration's support, either a 5- or 10-year extension on renewable energy tax credits. We don't see that in the budget, either. So, I'm talking about a longer horizon, shifting the playing field away from the very mature fossil fuel industry to the renewables, and an MIT technology guy, and as you just said, you're amazed at how much investment's going in there, but yet we still are only giving them about a 2–year horizon. Does the administration support changing the tax credits to give them longer horizons? The committee, on a bipartisan basis, has supported a 10-year horizon for some of those renewables; would the administration support that? Or even a 5-year?

Secretary BODMAN. I think that the administration is unlikely to support either. I can't say that categorically, because I don't know, I haven't questioned it. But I do think it's a matter of the budgetary impact, and you make that kind of a commitment that, you then extend it well out into the future. That's the reason for the more conservative standard for renewable fuel incentives.

Senator CANTWELL. Thank you, Mr. Secretary, I'm sure we'll have a hearty debate about these issues.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator DeMint.

Senator DEMINT. Thank you, Mr. Chairman.

And, thank you, Mr. Secretary.

I'm about to lose my voice, so I'll have to be brief.

I want to thank you, personally, for how responsive you've been to our questions and the meetings we've requested, and the professional way you go about your job. I've just got a few questions, maybe more global. You know I have a particular interest in the Savannah River site in South Carolina.

Secretary BODMAN. Yes, sir.

Senator DEMINT. But, my questions are more national.

Just, as it relates to budget, and our recent debate on earmarks. A number of the agencies had let us know that congressional earmarks diverted their attention from national priorities, and we

have made the pledge here in the Congress to eliminate unauthorized earmarks. But, there's still talk that report language has earmarks that our administration and different agencies are going to feel pressured to honor.

I just wanted to ask you, do you feel empowered at this point to apply your budget toward national priorities, and to ignore unauthorized report language earmarks that relate to your Agency?

Secretary BODMAN. Yes, sir.

Senator DEMINT. That's all I needed to hear.

Let me ask a broader question. I've got a lot of questions about the Savannah River site, and Savannah is a sister site to other sites in other parts of the country. But, as you know, there are multiple missions at this site, and others. It seems that every year we go back through the same process of not only fighting for budgets for the different missions, but actually fighting and arguing about if these missions really are a priority, and if they're going to continue.

It seems that what we're missing is a national vision for these sites, waste cleanup, recycling, as you in a recent letter committed to our Governor about salt-waste processing. But next year, we're likely to be debating again—which of these we will continue, which is a priority—and it would seem that DOE at this point needs to maybe help lead us with what is a national vision for all of these different missions, and at which sites are they going to be, so that when we, at least, argue about budget, we're arguing within the parameters of a national vision for our energy and alternative fuels, and recycling, and waste cleanup. The way we're doing it now, it seems so piecemeal, that we fund something and the next year we're not sure if we're going to fund it. I'm afraid in the process we're wasting a lot of money, losing a lot of time. Is there that goal within your Department to put all of the pieces together in a grand vision, and relate it back to these sites?

Secretary BODMAN. There is the desire to do that. There are limits as to how far we can go in terms of looking out into the future. Those limits are largely imposed by our friends at OMB, who look hard at whatever financial commitments we're making into the future.

I do think that the Department has, in making the judgments on this particular budget, used a so-called "risk-adjusted approach" where we have looked at where the risks are, and the largest risks are at Savannah River, at the Idaho facility, and at Hanford. That's where the priority was. It doesn't mean we've eliminated funding elsewhere, that's where the largest risks are. We are trying to adjust the focus there.

I would say this to you, Senator. This government has a major problem with respect to its long-range planning. We do 1-year budgets, we do it one at a time. I'm looking at changes in the committee, here—2, or 3 years from now, for sure, you'll have a different Secretary here who will be making judgments. We do this one at a time. And having a game plan that we all live by is something that our Government has a terrible time doing. But I agree with you, it's a desirable thing.

Senator DEMINT. Well, the Congress has that problem with short-term thinking, too. But I know, if I could just leave you with

one thought, and you know from your time in the business world, if you do your planning based on what you can afford, and pay for, you often miss the big opportunities. Many times, if that vision is clearly established, and laid out, and priorities are made clear, that tends to drive what we're willing to spend, and how we pay for it. I think Congress needs that leadership from the Energy Department right now. If we know it's a national priority, and we know you know how to make it work, I think we're much more likely to come up with the funding.

Secretary BODMAN. We will try to do a better job.

Senator DEMINT. And we will, too. Thank you, sir.

The CHAIRMAN. Senator Salazar.

Senator SALAZAR. Thank you very much, Chairman Bingaman, and Ranking Member Domenici.

And, welcome Secretary Bodman. First, let me say that I continue to be thankful to the attention that you and the President have paid to the National Renewable Energy Lab in Colorado, and was thankful for the President's statement, also, with respect to energy in the State of the Union.

My question today has to do with the follow-up, relative to the resources that we're putting behind the technological and alternative fuels efforts, to try to get us to the goals that the President articulated in the State of the Union.

Secretary BODMAN. Right.

Senator SALAZAR. I would like you—with all due respect, Mr. Secretary—to respond to the proposed changes in funding for the National Renewable Energy Lab which I—on first blush—have found quite troublesome.

The reduction that I have seen with respect to NREL shows that, with respect to wind energy, which is one of the big things happening across the country, and in the West, we are proposing a 26 percent change—a 26 percent decrease over the funding from last year. And then with respect to the total EERE programs, there is a decline of 3.6 percent from last year.

I look at the numbers in the budget—they don't quite match up to the vision and the program that the President articulated in his State of the Union, or that we have talked about in terms of the robustness of the effort that we need here. I think, at the end of the day, you and I both very much agree that this is one of the most important things that we could do to protect this country.

Secretary BODMAN. Well, it is. I have not looked at the NREL budget, so I don't know what it is. I've looked at the EERE budget, and that's up by 5 percent. I would be happy to give you a response at some point in time in the future about the NREL budget, in particular. I do believe that we are properly funding the efforts at EERE, in terms of their focus on renewable energy.

Senator SALAZAR. If you could do that later on, Secretary Bodman, I would appreciate it, just in terms of the impacts of the budget, related to NREL.

Secretary BODMAN. Yeah.

[The information follows:]

The Department of Energy's Fiscal Year 2008 budget request indicates a reduction in funding for the National Renewable Energy Laboratory (NREL), but these numbers do not tell the whole story. Throughout every fiscal year, NREL has the

opportunity to compete for additional funds for new research for specific projects. A conservative approach is taken when formulating the budget request. The Office of Energy Efficiency and Renewable Energy only designates the minimum amount of funding for known, ongoing operations—not the estimated value of new research that NREL may conduct. Unfortunately, this creates the appearance that funding going to NREL will be lower. In fact, actual funding to NREL has historically been higher than the original budget estimate. For example, in Fiscal Year 2006 NREL ultimately received $9 million more than the estimate shown in the FY 2006 request.

Senator SALAZAR. The other thing I would ask you to also focus on—and it may be part of the conversation that we have with respect to the continuing resolution, but there are some major aspects of the NREL capital construction program that are necessary in order for us to get to the level of alternative fuel production that we want to get to in this country.

Secretary BODMAN. Right.

Senator SALAZAR. They include the Integrated Bio Refinery Research Facility, the capital requirements for the Science and Technology Facility, and the Research Support Facility. Those are facilities that I know you became familiar with——

Secretary BODMAN. Right.

Senator SALAZAR [continuing]. When you were at NREL last year. So, I would ask for an update with respect to those three facilities.

Let me ask one more quick question while I have my remaining time here. We are in the midst this morning of another hearing in another committee, the Agricultural Committee on the 2007 Farm Bill. There are major initiatives within the Farm Bill related to alternative fuels, including investments of several hundred millions of dollars into cellulosic ethanol, and certain assumptions that are being made there.

In your view, does our budget here for the Department of Energy do everything that it possibly can do to unlock those keys which—do we still need to find the key to unlock the answers to get to commercialization of cellulosic ethanol?

Secretary BODMAN. Are we doing everything we could do? No. Are we doing what is reasonable? Have we made a reasonable tradeoff among the various areas for which I'm responsible? I think we have. I do know that there is an effort to coordinate what we're doing in our efforts particularly at NREL on cellulosic ethanol, with what the Ag people are doing. One of our former staff members' deputies is now over at Agriculture, and he has done a very good job at coordinating with us. So, we're trying to do a better job.

If you asked me, are we doing everything that I could imagine doing? The answer is no. Are we doing what I think is reasonable—have we made reasonable tradeoffs? I think we have.

Senator SALAZAR. OK, but at a committee hearing that Senator Bingaman put together on biofuels, I think the experts from around the country were telling us that it's impossible from their point of view for us to achieve the 30 billion gallon RFS that the President articulated in the State of the Union. What, quickly, is your view on that, and can this budget help us get to that, or is it impossible, given the budget constraints that we have in this budget?

Secretary BODMAN. No, I think we can get there. The morning after the State of the Union address, I actually accompanied the President to visit the DuPont Company, up in Wilmington, Delaware and to look at the results of a solicitation that was done 3 years ago. We jointly funded with DuPont efforts to create a biorefinery to manufacture cellulosic ethanol. Totally different than anything going on at NREL. They reported great progress. I have to tell you, I felt much better having left there; I was much more encouraged by that experience.

I would also tell you, before you came in, sir, I mentioned I did start out life as a venture capitalist. I have a 40-plus year history of watching that industry, and this is the first time in my 40 years of observing the industry that we have seen serious money—billions of dollars—going in from the venture capitalists, to the creation of cellulosic ethanol, as well as other raw materials. It's a big deal.

It's going to be Government, we're working hard on it, the Ag Department is working hard on it, but my guess is—like a lot of other things—the solution will probably come from the private sector, by taking some of the technology that we've developed. DuPont, for example, bases a lot of their work on what goes on at NREL. They work with the refining facilities there.

Senator SALAZAR. Well, I appreciate it. I see my time is up, and I don't want to infringe on my colleagues. But thank you so, so much, for your comments.

The CHAIRMAN. Thank you very much. We'll have a few more questions; I know Senator Domenici's coming right back.

Let me ask you about a couple of issues, Mr. Secretary. One is this 35 billion goal that the President has established for 35 billion gallons of renewable fuel by 2017.

Secretary BODMAN. Right.

The CHAIRMAN. We had a conference last Thursday on biofuels, and several of the witnesses said, in their view, the maximum amount of biofuels that could be reasonably produced from corn was about 15 billion gallons per year. That was——

Secretary BODMAN. I agree with that.

The CHAIRMAN. OK. Dr. Dan Arviso, who's head of your renewable energy laboratory——

Secretary BODMAN. Right.

The CHAIRMAN [continuing]. Was asked how much he thought could be produced from cellulosic sources by 2017, and he said that their most ambitious, or optimistic, projection was that it would be 6 billion gallons. So, I added the 15 and the 6, and I didn't get to 35.

Secretary BODMAN. Right.

The CHAIRMAN. How do you see us getting to the 35?

Secretary BODMAN. Well, first of all, I don't know. We're talking about 10 years, Mr. Chairman. I do believe that you will see efforts—there are scores of private companies that have been funded and are working in the private sector that are funded by some of my former colleagues in that industry, and they're very upbeat, and encouraging.

We have seen efforts by larger companies, and DuPont will have—they claim—a semiworks up and built within the next cou-

ple of years. They're working with a partner, I'm sure they would like to have a loan guarantee—to get back to one of your previous points—but they will be working with a partner to try to get that up and going.

We're talking about 10 years. Ten years in the high technology business is an eternity. Trying to forecast these things is very tough. I think this can be done. I have great regard for Dan Arviso, he's a very capable man. I wouldn't want to question whatever he told you. But I believe that the combination of alternatives—this is not just ethanol, or not just cellulosic ethanol—it is biodiesel, it is biobutanol. Butanol is a better feed additive to gasoline than ethanol. It has advantages, in that it doesn't take up water, and therefore it can be pumped around the country. I think it also counts hybrid and battery technology that will help.

There are different ways of looking at this, and I think that it's not unreasonable to assume that this thing can be met. I would be kidding you if I were to say anything other than this is a stretch goal. It's going to keep all of us on our toes, but I think it's worth doing.

The CHAIRMAN. Let me ask, also, a question about your proposed increase—400 percent increase for funding for GNEP.

Secretary BODMAN. Yes, sir.

The CHAIRMAN. I'm a little unsure, and I think we're probably going to have to have a hearing here, later on this spring, maybe, and look at this issue. Last year, the Department's justification for GNEP talked about phasing out old recycling technologies. This year, the Department's asking for engineering design funds for spent fuel treatment and recycling facilities.

Secretary BODMAN. Right.

The CHAIRMAN. As I understand it, there have been no breakthroughs in fuel recycling science and technology in the last year, so the Department is now proposing to design a recycling facility. I'm just not clear—are we abandoning current recycling technologies? Or, are we proposing to build facilities based on current recycling technologies?

Secretary BODMAN. The latter. The people at Argon Laboratory, out in Chicago, have developed bench-scale separation technologies to separate out the transuranic elements—plutonium, americium, curium and, I think, neptunium, whatever the fourth one is—from spent fuel. So, they've done it at the bench-scale.

The goal is to, therefore, get this scaled up, and to make it real. That's what all this money is for. When people say that we are not—whatever your first summary was, that, as you looked back, that we, last year the justification was that we were——

The CHAIRMAN. The statement was that we were going to be phasing out old recycling technologies.

Secretary BODMAN. I have no idea what that means.

The CHAIRMAN. Yeah, I didn't either. I think what we need is a better fix on how expensive this is going to be, how long-term this is going to take—we're starting to spend real money.

Secretary BODMAN. Oh, I know.

The CHAIRMAN. Under your budget here——

Secretary BODMAN. I understand.

The CHAIRMAN. We're getting it up to a level here, where Congress needs to know what it's investing in, in a little more specificity.

Secretary BODMAN. We would be happy to provide that for you, sir.

[The information follows:]

There have been successes this past year in the areas of fuel recycling. We have made substantial progress relating to the advanced separations and recycling technologies proposed for use as part of the Global Nuclear Energy Partnership (GNEP) initiative. The Department's national laboratories have repeatedly demonstrated, in laboratory settings, the final process step of the separation of the transuranics. Separation of transuranics from spent nuclear fuel, would allow for their reuse in fuel elements in an advanced recycling reactor. Additionally, the Department has initiated end-to-end testing of advanced separations technologies to further validate the transuranics processing steps and to provide data leading to an even larger-scale demonstration of separations technologies.

In response to the reference to phasing out old technology, the Department is not proposing to build facilities based on the PUREX process, which separates pure plutonium from spent nuclear fuel and is currently in use by the international community. Instead, we are proposing to use advanced technologies that allow spent nuclear fuel recycling without separating pure plutonium. Many of the individual steps from processes already demonstrated on a large scale can be selectively used by incorporating advanced separations processes without separating plutonium.

The Department's FY 2008 budget request would allow the continuation of vital research and development activities, including the expansion of ongoing modeling and simulation efforts. The FY 2008 budget request also supports continuation of conceptual design activities for the advanced fuel research facility and the design of the nuclear fuel recycling center and advanced recycling reactor. International activities are also planned to accelerate in FY 2008 and efforts on a proliferation resistant nuclear reactor suitable for use in developing economies would be initiated. The FY 2008 budget request supports these activities all of which will inform my decision on the path forward for GNEP and for continuing our critical advanced fuel cycle development.

Secretary BODMAN. I think it is fair to say that this is going to be a multi-decade problem. This is not going to yield to something that's going to happen in 3, 4, or 5 years. This is going to be 10-years-plus to accomplish GNEP.

There are four parts of it—it is recovery of the transuranics from the spent fuel. It is the creation—taking those transuranics, and converting them into a fuel element that can be used in a fast reactor. It is the creation of that fast reactor, and it is, fourthly, the reprocessing of the spent fuel from the fast reactor.

The goal of all of this is to create a mechanism, such that we can produce the energy, use the energy that is already stored in the spent fuel, but in a different chemical form. That's what the goal is, and to do it in a proliferation-resistant fashion. So that, in a summary, is what we're trying to accomplish. The challenges are substantial. It is a research program.

The CHAIRMAN. As I indicated, we'll probably have to have an additional hearing on this. I appreciate your explanation.

Senator Domenici.

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

I wish some of the Senators that were here earlier could participate in the discussion about how do we do what some of them have said we ought to do. I have some questions on unconventional fuels, like oil shale, that I want to get in.

But, Mr. Secretary, I think the committee's activity today and questions leaves you with a challenge that I would put forth, and

if you think it has merit, maybe you can do it. If you think it's wasteful, just tell us.

But, I think the questions that are raised by a couple of Senators who say, "We need a bigger goal, we need a 'shoot the moon' idea," they didn't use that word, I did. But that's what they're saying. I think they're mistaken, because I don't think we're going to solve our energy problem with one technology, and one fix. I think the problem is going to require—it might be a little bit too spread out, but I think it's going to require something like that.

I wonder if you might challenge your Department, or add somebody to it, and put down on paper, and submit to us for the record what the war on energy, on using oil, what is it, in terms of what we are doing? Because, I think you'll find, if somebody inventories it—we're doing a lot of things.

Secretary BODMAN. Yes, sir.

[The information follows:]

The Department of Energy is indeed engaged in many, many activities designed to increase America's energy security and reduce our dependence on foreign sources of energy, particularly petroleum and petroleum products. We currently import almost two-thirds of our oil.

Last October, I released the Department's Strategic Plan, and Energy Security was listed as the Plan's number one strategic theme. Another of the Plan's strategic themes is Scientific Discovery and Innovation, and I would like to outline for the Committee some of the important and wide-ranging activities in these two areas. I agree with your assertion that we are not "going to fix our energy problem with one technology, with one fix."

Probably the most important aspect of increasing our energy security is increasing our diversity of supply. This is especially critical in terms of the transportation sector, where petroleum accounts for more than 95 percent of the fuel consumed. DOE is investing in both energy efficiency and alternative fuels technologies to reduce the energy-intensity and increase the fuel-flexibility of America's economy while maintaining and improving our environment. We are making tremendous strides in two transportation sector-related areas: fuels and vehicles.

In the area of fuels, the Department is moving ahead to transform the nation's domestic biomass resources into affordable biofuels and to make cellulosic ethanol cost competitive by 2012. Achieving this goal could allow market penetration of significant amounts of ethanol that could help reduce our dependence on oil. Biomass is a critical renewable resource, as it is the only renewable option for producing liquid transportation fuels in the near term and reducing our dependency on imported oil. Because we cannot increase our use of corn grain indefinitely, we need to increase our use of cellulosic ethanol—which can be made from a variety of non-food or energy crops like switchgrass, agricultural residues like corn stover, various straws and hulls, as well as forest resources. Although it requires a more complex refining process, cellulosic ethanol contains more net energy and results in lower greenhouse gas emissions than traditional corn-based ethanol. On February 28, I announced that DOE will invest up to $385 million for six cellulosic ethanol biorefinery projects over the next four years. On May 1, I announced that DOE will provide up to $200 million over five years to support the development of small-scale cellulosic biorefineries. DOE believes that these cost share projects will lead to commercial demonstration of advanced biorefineries that use cellulosic feedstocks to produce ethanol and co-produce bioproducts and electricity.

In the area of vehicles, DOE's Vehicle Technologies program is seeking to enable personal and commercial highway vehicles to become more fuel efficient. Technology research includes lightweight materials, advanced batteries, power electronics and electric motors for hybrid and plug-in hybrid vehicles, and advanced combustion engines and fuels. These technologies contribute to reducing America's use of oil. For instance, advanced passenger vehicle diesel engines have the potential to achieve significant efficiency gains with near-zero emissions. We continue to focus on expanding efforts to promote the adoption and use of petroleum-reducing fuels, technologies and practices.

While all of these technologies show great promise in reducing our dependence on foreign oil, the Administration and DOE believe that we must maintain and indeed expand our "insurance policy" that helps protect us from severe energy supply inter-

ruptions. Accordingly, we have maintained the level of our Strategic Petroleum Reserve and we are in fact significantly increasing the amount of oil stored in it in accordance with our statutory obligations under the Energy Policy Act of 2005 to increase the inventory of the Reserve to one billion barrels. Additionally, we have proposed to increase the overall capacity and inventory to 1.5 billion barrels.

I would be remiss if I did not emphasize the importance of our Scientific Discovery and Innovation strategic theme. We are entering a new era of increasingly rapid changes in the pace of discovery and innovation. These changes present both opportunities and challenges, requiring a new U.S. commitment to science and innovative approaches for accelerating the realization of benefits from our research enterprise. We must remain vigilant as other nations invest heavily in science and technology in an attempt to match our economic productivity and compete with U.S. industry.

The Department of Energy has a laboratory system second to none in the world, and I would like to offer two examples of the kind of work that our labs do which contributes to U.S. efforts to become less dependent on foreign sources of oil. First, through a partnership between Chevron Energy Technology Company and DOE's Los Alamos National Laboratory (LANL) in New Mexico, new technologies developed at LANL are being transferred into commercial application that are being used to enhance oil and gas production. For the oil industry, methods to communicate down the well had been generally unreliable due to corrosive conditions. Los Alamos National Laboratory's wireless communication technology, INFICOMM, is being adapted for use in oil and gas wells. The wireless communication allows data rates up to a million times faster than conventional techniques, so that real-time, broadband production data can be obtained. The wireless communication system allows production data to be sent from remote wells to a platform or a flow station without the need for batteries or other power. This initial agreement has led to a cooperative research and development agreement between Chevron and LANL to advance energy security. The agreement has led to further technology development used in acoustic sensing and fluid flow characterization through a pipeline.

In another area where DOE's lab system has been instrumental in contributing to reducing our reliance on foreign oil, our efforts to develop cellulosic ethanol as a viable commercial motor fuel have been supported by work of the National Renewable Energy Laboratory (NREL) in Golden, Colorado. A new genus and species discovered by NREL scientists has the potential for widespread use in the biomass industry.

NREL packaged its discovery into an enzyme technology that has the potential to improve productivity for biorefineries. This technology, E1 Thermostable Endoglucanase (E1), allows manufacturers to create industrial chemicals at a greatly reduced temperature, as well as at a greatly accelerated process, which translates into cost savings for the biomass industry. This platform technology is designed to utilize a renewable technology based on enzymes to convert organic materials into sugars, for further development of ethanol/fuel, as well as other chemicals and products.

NREL entered into a license agreement with Genencor International for the E1 suite of patents. This license agreement between NREL and Genencor provides an opportunity for the biotechnology industry to begin production from plants and other renewable resources, which promote both environmental and industrial sustainability in addition to being cost competitive with those synthesized through traditional chemistry.

These examples are representative of the efforts DOE is undertaking on an ongoing basis to reduce our reliance on imported oil. As you know, our FY08 Budget documents provide additional details of these efforts.

Senator DOMENICI. The problem is, nobody knows it, and once they know it, they forget it by the next week, and they're looking for some more. We don't have to worry about that, because we're just working at it—you and I, and Jeff and others, are just busy at it. But, I think it might be worthwhile, trying to put a plan together saying what we are doing.

You tell us, every time we meet, you mention things that I am not aware of, like you mentioned that we have three plants with such-and-such that are going to do such-and-such.

Secretary BODMAN. Oh, the bio-centers, sir?

Senator DOMENICI. Right.

Secretary BODMAN. Yes.

Senator DOMENICI. I don't know enough about them to participate in a discussion with you. That's my fault, not yours. But those are big-time things. They would fit into a map and narrative of: what is it we are doing? What is the goal, and what are we doing? I think it's pretty good.

Secretary BODMAN. I—thank you, I agree with you. I think it's pretty good, too.

Senator DOMENICI. Do you think it's worth evolving it out?

Secretary BODMAN. Sure, we'll be happy to. That's frankly what we attempted to do in the budget.

Senator DOMENICI. It's too cumbersome.

Secretary BODMAN. A lot of what we say will be related to the budget, but we'll try to do it.

Senator DOMENICI. I think it's just got to be smaller.

Secretary BODMAN. Yes.

Senator DOMENICI. It's got to be less verbose, and it's got to be a little more artistic in the sense of people looking at it and saying, "This is the American Energy Program." I think if you don't do it, it's—other Departments claim pieces of it. I'm glad you're working with the farmers, the people at Agriculture, because there's no question, there can and may still be a big fight—whether they should do a $100 billion loan program, or whether we should be doing it—and I'm glad you know that's a problem.

Secretary BODMAN. Yes, sir.

Senator DOMENICI. I'll be a couple of more minutes.

Now, having said that, let me ask you this. The Department of Energy estimates that technologically recoverable oil shale in the United States is roughly equivalent to three times Saudi Arabia's oil in their reserves. Section 369 of the Energy Bill, which we keep referring to, again, has a very interesting proposition. It directs you to accelerate the commercial development of this conventional fuel. Are you aware of that?

Secretary BODMAN. Yes, sir.

Senator DOMENICI. You're working on it. First question: explain your progress in facilitating the commercial development of these resources, and what you believe is the greatest impediment to the commercial development of unconventional fuels. When do you believe the United States will have a commercial oil shale program, and how can this process be expedited?

Secretary BODMAN. Well, we do this, first of all, without incentives for oil and gas. That is the standard by which we operate, and therefore we do have a number of private companies that are working—Shell, in particular, has got a very exciting program. I think you visited out there, if I'm not mistaken.

Senator DOMENICI. Yes, sir.

Secretary BODMAN. I think their goals and aspirations are very consistent with what you just said. That's why they're there. I think their commitment to a process for the recovery of oil is a multi-year research program, but one that they're very committed to. One that they claim pays off at roughly the $30–$35 a barrel level. So when you ask what the impediments are—the impediments are, this is a very, very tough environment in which to operate. Because heretofore it has involved, basically, a mining oper-

ation, where you dig the stuff up. That proved to be a very expensive way to do business.

What is now being undertaken is to do it underground, and I think there is reason to believe that they can do it.

Senator DOMENICI. Oh, Mr. Secretary, stop there. You see, what I'm thinking is, if you wrote up what America is doing, to try to solve our problem, under the rubric of trying to produce conventional fuels.

Secretary BODMAN. Right.

Senator DOMENICI. But some people think we should stop trying that and go some other way—I don't think we should stop if some can be developed that are usable, and I think this is one—let them push, that is, the private sector, but you be as accommodating as you can under the law, and you count this as something we are doing. It's an American effort that some people in the world will look at, and say, "My, they may make it," right? It's right up there near Canada, where they're making it up——

Secretary BODMAN. Sure.

Senator DOMENICI [continuing]. Using tar sands.

Secretary BODMAN. Sure.

Senator DOMENICI. But, you have no inhibitions about Shell, or anybody else, working on those leases. You do take the language seriously, where we had said, in the law, that you, as Secretary, are to accelerate commercial development. You take that seriously?

Secretary BODMAN. Yes, I do.

Senator DOMENICI. My last point is, could you look at whether working with the United States military might help matters, with reference to shale? If we passed a little statute that gave the Defense Department authority to purchase long-term contracts, to purchase tar sands oil, diesel, that met their needs. If they could have authority to make contracts, it would seem to me that eliminates one of the real problems that Shell has.

Secretary BODMAN. I have visited with the Secretary of the Air Force—their interest in using coal-based liquids to run one of their aircraft. They also have an interest in making use of, gasifying, the coal and then converting it over using this Fischer-Troppes process that the South Africans developed. My concern is the length of time that they feel that they can commit to.

So, you're right, I think that that's a good subject, and in order to do that, we need to get the people who are funding, you need to get an investment banker who knows about these kinds of projects who are funding them, and to get some sense of how long the commitment must be, in order to get the project financed.

Senator DOMENICI. Thank you.

Secretary BODMAN. So, I think you have a good idea.

Senator DOMENICI. Thank you, Senator.

The CHAIRMAN. Senator Akaka.

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

Mr. Secretary, Hawaii has the highest electricity rates in the country, and in response, we have become one of the largest markets for solar energy in the country. As our demand for electricity continues to rise, we increasingly must turn toward renewable energy there.

Secretary BODMAN. What's your electricity cost, Senator, if I could ask you? Do you know?

Senator AKAKA. You know, I haven't paid my bill in Hawaii in a while.

Secretary BODMAN. In a while, forgive the question.

Senator AKAKA. But it is 27 cents per kilo——

Secretary BODMAN. Per kilowatt hour?

Senator AKAKA. Yes.

Secretary BODMAN. Wow, that's very high, that's for sure.

Senator AKAKA. Yes.

Secretary BODMAN. So, solar energy works.

Senator AKAKA. Solar energy is something that would certainly help the cause there.

Secretary BODMAN. Sure.

Senator AKAKA. Yet, the budget presented by the Secretary significantly decreases funding for renewable energy technologies. In particular, when our government should be increasing investment in new technologies like solar energy, the administration has decided to keep funding flat.

My question to you is, according to the President's Solar America Initiative, the second year of the program was expected to be funded at $175 million—why did the administration decide to curb this program after only 1 year?

Secretary BODMAN. I don't know the specific program that you refer to, but it is supposed to be flat, at least, according to the figures I have. We've got a hundred, roughly $150 million that we had asked for in 2007, and we have asked for the same amount in 2008, if that's what you refer to in your——

Senator AKAKA. Yes.

Secretary BODMAN [continuing]. Your suggestion was that we had originally said that the 2008 number should be $175 million?

Senator AKAKA. That's correct.

Secretary BODMAN. I don't know the answer to that. I can tell you I believe that this is enough, such that we can accomplish that which we need to accomplish, in terms of funding the development of photovoltaic technology. Here again, I feel that it's very important to observe what is going on in the private sector. I will tell you that a lot of people are coming out of the memory business in Silicon Valley and are starting their own PV businesses. That's a major source of activity to the venture capital community in Silicon Valley.

I think you're going to find a lot of interest, and you're going to find it at the kind of prices you're talking about. You'll find a lot of takers, I would think, in California, in terms of the industrial activity there.

I can't give you any more on this, other than we think, between what they're doing, what's going on in other private companies, in other parts of our country, together with this $148 million, that that's quite a sizable—and that's largely at NREL, out at the Renewable Energy Laboratory out in Colorado. It's a very substantial commitment.

Senator AKAKA. Well, let me quickly, then, ask you a question about hydrogen.

I'm pleased to see the increase of $19.5 million in fiscal year 2008 requests for hydrogen fuel initiative in, what we call, EERE.

Secretary BODMAN. Yes.

Senator AKAKA. The budget states that increased funding is supposed to expand research, in several areas for hydrogen, such as hydrogen production from renewables. Can you explain how much of the increase across all parts of the DOE budget, is allocated to renewable production of hydrogen, not just the portion from EERE?

Secretary BODMAN. I have the figures—I happen to have the figures here in the 2008 budget. The total is $306 million—that's how much money is in the budget, that has been proposed by the President. Of that, two-thirds, $213 million, is in EERE, and the balance is in the creation of hydrogen using nuclear energy. In nuclear energy, the advanced fuel cycle, that's $22 million, the fossil energy is $11 million, and the Office of Science has been focusing almost $60 million. That would also fall into the category of renewable energy.

All of that is up some, almost $20 million from the request for last year. It is up $60 million, $70 million from 2006. It's a substantial increase.

Senator AKAKA. Yes. Well, I appreciate that.

Let me close by asking you, and for the record, if you could provide what the budget proposals for the budget of hydrogen from non-renewable sources, and I—just for the comparison—I would really appreciate that.

Secretary BODMAN. From non-renewable sources?

Senator AKAKA. Yes. It's for comparison purposes. I just wanted some information about that.

Secretary BODMAN. OK. I'd be happy to do it.

[The information follows:]

Funding requested in the Department's FY 2008 budget for hydrogen production as part of the Hydrogen Fuel Initiative includes $12.45 million for fossil-based activities. The request also includes $22.6 million for nuclear-related hydrogen production. The remaining $272.5 million in the request funds all other activities, including renewable-based hydrogen production ($40.0M), basic science, hydrogen storage and fuel cell research and development, and technology validation.

Senator AKAKA. Yes.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Senator Thomas.

Senator THOMAS. Two very quick ones.

Thank you, Mr. Chairman.

Mr. Secretary, the budget eliminates funding for the improvement to existing electric-producing plants. Half of our electricity, of course, is already produced there. Does this elimination sign that the DOE's giving up on improving the generation that's already in place?

Secretary BODMAN. No, it's just a question of where we wanted to put the moneys that we were spending this year. We haven't given up on improving the cost of producing electricity using current technologies.

Senator THOMAS. Well, if you took the money away, you're giving up the improvement budget, right?

Secretary BODMAN. In that sense, but I don't expect them to give it up. I don't expect them——

Senator THOMAS. I'm asking if you are going to help them. The answer is no.

Secretary BODMAN. The answer is no.

Senator THOMAS. Very specifically, the Rocky Mountain Oilfield Testing Center——

Secretary BODMAN. Yes, sir.

Senator THOMAS [continuing]. Is a Department facility, who runs and uses it. Every year, I've had to earmark it to get it in there. Do you intend to have money for that?

Secretary BODMAN. That is not in the budget, sir, no.

Senator THOMAS. So, what does that mean?

Secretary BODMAN. It means that it is not in the budget. It means that we do not feel that, at these prices, one needs to provide incentive for the oil and gas business.

Senator THOMAS. Well, of course, the fact is that the system generates its own funds that go into the Treasury.

Secretary BODMAN. Yes, sir.

Senator THOMAS. So, that it can support itself.

Secretary BODMAN. Well, then if it can support itself, then it can support itself, and it doesn't need money from me.

[Laughter.]

Senator THOMAS. All right. I don't think that's a very good answer for a function within your Department.

Secretary BODMAN. I will be happy to look at that more carefully, and provide you a more thoughtful answer, that you would consider to be better than the one I just I just gave you.

Senator THOMAS. I think you have a good chance to make a better one, yes.

Secretary BODMAN. All right, sir.

[Laughter.]

Senator THOMAS. Thank you.

[The information follows:]

Yes, the Department does request funding annually for the Rocky Mountain Oilfield Testing Center (RMOTC) in the budget process. However, the RMOTC budget request is not part of Fossil Energy's Office of Oil and Natural Gas request. Rather, the RMOTC budget request is included with the budget for the operation of Naval Petroleum Reserve No. 3 (NPR-3), which is part of the larger Naval Petroleum and Oil Shale Reserve (NPOSR) request. For FY 2008 we are requesting $10.110 million for RMOTC and NPR-3 operations. Projected revenues for FY 2008 are $4.4 million.

The CHAIRMAN. Thank you, Mr. Secretary. Thank you very much. You've been very patient with us, and I think we've all asked the questions we can think of, if there are other questions that members have, or statements they want to put in the record, we would have them submitted by the end of tomorrow, and we appreciate your time, and your continued interaction with the committee.

Secretary BODMAN. Thank you very much, Mr. Chairman. I appreciate it.

The CHAIRMAN. Thank you.

[Whereupon, at 11:40 a.m., the hearing was adjourned.]

APPENDIX

RESPONSES TO ADDITIONAL QUESTIONS

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR BINGAMAN

ENERGY POLICY ACT (EPACT 2005) FUNDING

Question 1. EPACT 2005—Secretary Bodman, similar to last year our staff has completed their analysis of Department funding of the Energy Policy Act of 2005, would your staff please review this and make comments or corrections?

Answer. The Energy Policy Act contains authorizations for a variety of initiatives. As the Administration noted in the July 15, 2005, letter to the conference committee on H.R. 6, the House and Senate versions include authorization levels that set unrealistic targets and expectations for future program-funding decisions. Furthermore, many of the activities in the FY 2008 Budget support more than one authorization. Therefore a one-to-one correspondence between the Budget and authorizations in the Energy Policy Act would necessarily be incomplete and a matter of judgment. In formulating the FY 2008 Budget, the Administration has proposed funding levels to advance its energy policy priorities and objectives and successfully implement EPACT 2005. The Administration will continue to plan for efficient implementation of EPACT 2005 through budget requests in future years.

Question 2. Section 1001 EPACT Technology Transfer, P.L. 109-58: (a) Where is the technology transfer coordinator as mandated by law?; (b) Where is the 0.9 percent set aside to promote technology transfer as mandated by law?; and, (c) Where is the report as mandated by law?

Answer. Under the direction of the Under Secretary for Science, the Department has a working group studying implementation of the statutory requirements of section 1001 of EPACT 2005, including alternatives for the coordinator position and supporting organizational structure. Based on input from the working group, the Department will be in a position to determine the steps to be taken under section 1001 including the preparation of an implementation plan.

Question 3. Section 1102(c) EPACT, P.L. 109-58: 0.3 percent set aside for education—where is it as mandated by law?

Answer. Our initial estimate of the Department's spending on science education and training programs indicated that we currently spend more than 0.3 percent of the Department's R&D budget on the education activities authorized in EPAct or previous authorities. We are currently in the process of quantifying our figures for both total Department funding for research, development, demonstration and commercial application activities, and total Department funding for authorized education activities. The Department is in the process of collecting this information from the laboratories and will provide those figures to you as soon as they are available.

In addition, although Section 1102(a) is titled the "Science Education Enhancement Fund," the legislative language does not establish a fund. DOE's General Counsel advises that the language does not require DOE to establish a fund. General Counsel advises that so long as DOE uses at least 0.3 percent of the applicable appropriated funds for the authorized education activities, the Department is in compliance with section 1102 of EPAct.

SOLID STATE LIGHTING

Question 4a. Why did the Department keep it level at $19 million for the Fiscal Year 2007 amount when nearly every other conservation account increased?

Answer. Over the last five years, the Department has steadily increased funding for SSL RD&D. Funding for solid state lighting research has more than doubled since FY 2003 and the Department's FY 2008 budget request reflects the resources needed to maintain this activity at a high level of output. As authorized by EPACT

2005, we launched the Next Generation Lighting Industry Alliance and attracted world-class scientists to our cost shared R&D. We have also launched an ENERGY STAR® product certification process which is on track to be completed by March 2007 resulting in SSL products receiving an ENERGY STAR® label by fall of 2008.

Question 4b. Solid State Lighting nearly accounts for 20 percent of our electricity needs

Why did the Office of Science hold a workshop on solid state lighting and not develop a follow on initiative as it has done with other measures such as solar, hydrogen and nuclear energy?

Answer. Nearly one dozen workshops have taken place or are planned in the "Basic Research Needs" series, including specialty workshops on the needs of the hydrogen economy, solar energy utilization, advanced nuclear energy, superconductivity, solid-state lighting, 21st century transportation fuels, electrical energy storage, earth sciences and sequestration of energy wastes, advanced materials for energy applications, and catalysis. Together, these workshops have helped clarify the distinct yet synergistic roles of the Office of Science and the DOE technology offices. Consistent with other budget priorities, the Office of Science is now considering ways to smoothly integrate the large number of workshop topics into the portfolio of the Basic Energy Sciences program. This is expected to occur over the next year or two.

NUCLEAR ENGINEERING EDUCATION

Question 5a. For FY2007, 23 bipartisan senators signed a letter to the Senate Energy and Water Appropriations subcommittee supporting this important program.

Why did you terminate a program that has trained undergraduate and graduate students since the Atomic Energy Act was implemented?

Answer. In FY 2006, university engineering programs reached the highest level of enrollment in more than a decade. Increased enrollment allowed the Department to meet its goal set for the University Reactor Infrastructure and Education Assistance Program. The Administration has not requested funding for the University Reactor Infrastructure and Education Assistance program because the program's recruitment targets have been met, and DOE believes that limited budget dollars are better spent conducting essential research at universities. In this vein, the Office of Nuclear Energy continues to provide significant funding for university research and development. Specifically, the FY 2008 budget request includes approximately $62 million for university research and development ,which is a 21% increase over the FY 2007 request. This money goes to fund research and development at universities to complement DOE's Advanced Fuel Cycle Initiative, Generation IV, and Nuclear Hydrogen Initiative programs.

Question 5b. Do you believe the Department has a unique responsibility under the Atomic Energy Act in acting as a steward for training nuclear engineers and helping maintain university training reactors?

Answer. Section 31a of the Atomic Energy Act states, in pertinent part, that "[t]he Commission is directed to exercise its powers in such manner as to insure the continued conduct of research and development and training activities in the fields specified . . . by private or public institutions or persons, and to assist in the acquisition of an ever-expanding fund of theoretical and practical knowledge in such fields." Accordingly, DOE has a stewardship responsibility in the nuclear energy field and this is why the Office of Nuclear Energy (NE) continues to support Nuclear Engineering and related university programs. The scholarship and grant program has been replaced with a competitive, program sponsored research program; the Nuclear Energy Research Initiative. In this approach, support for universities can increase as nuclear energy programs grow and universities will be directly contributing to NE successes.

Question 5c. I would like the Departments comments to the six recommendations found in recent American Nuclear Society's report "Nuclear Human Element".

Answer. With regard to the first recommendation DOE believes that a detailed Nuclear Science and Engineering workforce study to determine the aggregate demand for nuclear engineering graduates over the next 5-10 years would be useful, but should be undertaken by a non-Department of Energy entity funded by the nuclear industry. A comprehensive study of the workforce has not been done previously, although a few studies have been conducted for segments of the nuclear industry.

The second recommendation concerning the revision of the University Program along the lines of the "Chicago Framework" to make it more research driven, mission oriented and peer-reviewed is precisely what the Department plans to do within the Nuclear Energy Research Initiative program. The Chicago meeting was spon-

sored by NE to gather the collective input of the nuclear community and we have taken the recommendations offered in Chicago and plan to include them in a revised and expanded Nuclear Energy Research Initiative program.

DOE believes that the third recommendation for maintaining a separate line item for University Programs can be better accomplished by imbedding university research and infrastructure to support that research within our mission related research and development programs such as Advanced Fuel Cycle Initiative/Global Nuclear Energy Partnership, Generation W and the Hydrogen Initiative.

The reports fourth recommendation that Congress increase funding commensurate with the levels authorized under the Energy Policy Act of 2005 may be achieved over time as NE's nuclear research programs grow. NE's funding for university research will exceed $50 million in fiscal year 2007 and would be in excess of $60 million in our proposed fiscal year 2008 budget.

The fifth recommendation that Congress should enact and fund the Department's Office of Science-administered "Nuclear Science Education" program included in S. 2127, the "PACE Energy Act," and S. 3936, the "National Innovation Competitiveness Act," may duplicate, in the case of nuclear engineering, many of the initiatives under the Nuclear Energy Research Initiative program. Also, the Office of Science already funds research activities at laboratories and universities in areas related to the Department of Energy's missions. Those activities receiving funding have been through a robust proposal and peer-review process, and such support results in high quality science that in turn attracts outstanding students to the field. The model used by the Office of Science is consistent with the recommendations resulting from the Chicago Framework.

DOE disagrees with the final recommendation to have an interagency working group on the Nuclear Science and Engineering convened that would provide high-level guidance on the overall structure of the NE's University Program, as well as the technical thrusts of its solicitations. NE intends to target university efforts towards its specific research and development needs that are determined by other merit based reviews involving the entire Department and other agencies.

ADVANCED FUEL CYCLE INITIATIVE

Question 6a. The administration proposes a 400 percent increase in the AFCI program over FY 2006 appropriated levels which the Department is currently operating under yet we have not any form of programmatic milestones and timelines for the program as a whole.

When will the Department be able to provide the Committee with cost, scope and schedule data so staff can track the program no differently than we track the Waste Treatment Plant or the National Ignition Facility?

Answer. The Department is developing a Global Nuclear Partnership Program Management Plan (GNEP PMP) that outlines high-level programmatic milestones, cost schedules, and timelines for GNEP. In addition, DOE plans to further engage industry to provide additional input for consideration leading, to an informed Secretarial decision by June 2008. We anticipate that the plan will be available in time to inform a Secretarial decision by June 2008.

Question 6b. When will the Department provide an end-to-end cost and time to completion of the three phases of the project: (1) the advanced fuel treatment center; (2) reprocessing (recycling) demonstration; and, (3) the breeder (burner) reactor?

Answer. The Department has developed preliminary milestones and timelines based on the GNEP Technology Development Plan and industry engagement on both a nuclear fuel recycling center (sometimes referred to as the Consolidated Fuel Treatment Center (CFTC) (reprocessing)) and the advanced recycling reactor (Advanced Burner Reactor) to develop a better end-to-end cost and timetable to complete these projects. Currently, the plan is to seek industrial participation to provide a conceptual design study and a business case analysis. Under the current schedule, the Department anticipates having the results of these efforts from industry in time to inform a Secretarial decision by June 2008.

For the Advanced Fuel Cycle Facility (AFCF), the Department plans to use its national laboratories and industry to develop a conceptual design level cost, scope, and schedule in time to inform a Secretarial decision by June 2008.

Question 6c. Nominally, the physics of a reprocessing/fast reactor require one fast reactor for every three light water reactors. We have not even commercially built a generation III+ reactor in the United States. Is it reasonable to assume industry will be able to build commercial fast reactors when they have not even demonstrated the economics of generation III+ reactors?

Answer. Yes, it is reasonable to believe industry can build commercial fast reactors as there are mature domestic and international designs of fast reactors that

could be modified to meet GNEP requirements. Information provided as input to the Department's request for Expressions of Interest indicated that industry could have a fast reactor that meets the GNEP requirements operational in the 2020-2025 timeframe. France, Japan, and Russia have all announced their intention to have commercial fast reactors in operation in the 2020-2025 timeframe.

Contributions through international collaborations paired with the advanced modeling and simulation tools, currently in development, could greatly decrease the time needed to improve and revise reactor designs. Those efforts are targeted at enabling commercial fast reactors to be cost competitive with commercial light-water reactors for electricity generation. The Department believes that while economics will drive industry's decision on construction and operation of fast reactors, once first of a kind costs are spent, the business case for fast reactors that consume transuranic elements from spent fuel can make them competitive with light water reactors.

Question 6d. One of your department's analysts, recently presented a paper in which he calculated that the cost of implementing the GNEP program over a 100-year period would be $2.7/MWh greater than the cost of direct disposal for a baseline scenario. This would work out to a cost increment of hundreds of billions of dollars over a 100-year period. Overall, he concluded that "most of the scenarios presented indicate a cost advantage for direct disposal," with the highest increment being $4/MWh.

Given that no commercial entity will pursue construction of any GNEP facility with such a large cost penalty compared to the once-through cycle with direct disposal, government subsidies (or "incentives") will be required to attract the interest of commercial entities in GNEP. Do you support the use of such subsidies, or are you will to let the market decide whether GNEP is viable on a level playing field?

Answer. DOE's goal is to encourage the nuclear industry to become fully engaged in GNEP and provide us with credible business plans or models that support the notion of a private or government-private partnership to recycle SNF.

Question 6e. On your stated goal of no separated plutonium, in the Notice of Intent published in the Federal Register in January, it is stated that "DOE envisions that a nuclear fuel recycling center and an advanced recycling reactor could begin operation before DOE has fully completed its research and development of the transmutation fuel recycling at an advanced fuel cycle research facility. During this interim period, DOE may use a nuclear fuel recycling center to separate light-water reactor SNF and support the fabrication of fast reactor driver fuel which would be consumed in the advanced recycling reactor. This fuel could be made of uranium and plutonium, but would likely not contain other transuranics."

To produce conventional fast reactor driver fuel, the "nuclear fuel recycling center" would have to engage in a process very similar to PUREX to produce separated plutonium. The fuel elements would necessarily contain more than 10% plutonium, and therefore would be Category I items according to DOE's material categorization. Therefore, the nuclear fuel recycling center and the advanced recycling reactor would both be Category I facilities.

Assuming that the throughput of the nuclear fuel recycling center is 2000 MT per year, it would separate 20 MT of plutonium annually, roughly doubling the current plutonium separation worldwide.

Given these considerations, how can this GNEP proposal meet your nonproliferation goal?

Answer. With regard to GNEP non-proliferation goals, GNEP plans to use separations technology different from PUREX that does not result in separated plutonium. In the long term, the vision is to move the world away from Light Water Reactor Mixed-Oxide fuel and replace it with an advanced "actinide fuel" which has a mixture of uranium and transuranic elements and therefore can only be used in fast reactors which would be located in Fuel Cycle States.

Question 6f. FY 2008 budget includes work on a decision package for you to announce a public-private partnership for building a nuclear fuel-recycling center and a prototype advanced recycling reactor. When in 2008 will this be ready? Will this plan propose building just two facilities?

Answer. The Department is planning to support a Secretarial decision in June 2008 on the path forward for GNEP. To support that decision, the Department is planning to engage industry on conceptual design and engineering analysis for a nuclear fuel recycling center and an advanced recycling reactor. At the same time the Department is continuing conceptual design efforts at the national laboratories for an advanced fuel cycle research facility to better understand cost and schedule. Consequently, the Secretarial decision could propose three facilities. The Secretarial decision may propose any of a number of paths to meet the goals and objectives of GNEP.

Question 6g. You have already provided funds for 11 potential sites for building GNEP facilities. Have you provided additional funds to these communities in your FY08 budget?

Answer. The siting studies called for in the FY 2006 Energy and Water Development Conference Report will be completed with FY 2007 funding and therefore DOE did not propose using any of the FY08 budget funding in these communities.

Question 6h. How far along is GNEP in completing bilateral agreements with other nations on global nuclear cooperation?

Answer. The first GNEP bilateral Action Plan between the United States and the Russian Federation was completed and submitted to Presidents Bush and Putin on December 15, 2006. The first U.S./Russian GNEP workshop is scheduled for March 13-14, 2007, in Russia. GNEP bilateral Action Plans between the United States and Japan and the U.S. and France are being discussed with a goal of completion in 2007.

Question 6i. You have proposed $10 million for NNSA to begin work on GNEP. What is this for?

Answer. The $10M identified for NNSA would support key GNEP nonproliferation activities including work on advanced safeguards and monitoring and small proliferation-resistant reactors. NNSA would participate in the design and development of a nuclear fuel recycling center, an advanced recycling reactor, and an advanced fuel cycle research facility. NNSA would also support international nonproliferation activities in a manner that is consistent with U.S. policy.

Question 6j. Do you believe that advanced fuel cycle technologies reducing volume, thermal output and radio-toxicity will allow Yucca Mt. to accommodate all of the spent fuel generated in the U.S. this century? (This assertion came from their new brochure "Recycling Spent Nuclear Fuel" pg. 2)

Answer. Yes, the Department believes that the recycling of SNF envisioned by GNEP could reduce the volume, thermal output and radiotoxicity of waste requiring disposal in a geologic repository, such as Yucca Mountain, and thereby significantly defer the time at which a second repository would be needed. High-level waste comprises only approximately 5% of the SNF that requires disposal in a geological repository. GNEP would separate the 5% of the SNF and place it in a form acceptable for disposal in a geologic repository.

OIL AND GAS R&D

Question 7. For the third year in a row the Department proposes to zero out oil and gas research and development when the price of oil and gas is climbing and 90 percent of all domestically produced oil and gas in the lower 48 is through small independent producers.

Question 7a. Does the Department believe zeroing out these programs will not affect the small independent producers who cannot afford large research programs like the majors?

Answer. Oil and gas are mature industries and both have every incentive, particularly at today's prices, to enhance production and continue research and development of technologies on their own. There is no need for taxpayers to subsidize oil companies in these efforts. Although independent operators may not fund technology development directly, the service industry that supplies them with equipment funds significant development of applicable technologies. The Department expects the service industry to continue to provide technological innovations for use by major and independent producers.

HYDROGEN

Question 8. The administration says in their budget request they will complete the $1.2 billion commitment to the Hydrogen Program yet it does not have final achievable goals until 2014 to field a commercially acceptable fuel cell vehicle—where does this leave you all meeting this 2014 milestone after only five years of funding?

Answer. While the President's funding commitment was for five years (FY 2004—FY 2008), the Administration anticipated continued support in line with meeting long-term goals. The Hydrogen Fuel Initiative is on track to develop the critical technologies that will enable hydrogen and fuel cell technology readiness in 2015 and the potential for commercial viability by 2020 (i.e., fuel cell vehicles and the hydrogen infrastructure to support them). Commercialization is entirely determined by the private sector participants, who, under partnership agreement with the Department, have committed to commercialize technologies as soon as a business case can be made.

WEATHERIZATION AND LIHEAP CUTS

Question 9. Mr. Secretary—I am very concerned about the Administration's $98.5 million budget cuts for the low income weatherization program (FY08 $144 million compared to $245.5 appropriated in 2006) We had this conversation last year and I regret that we are having it again. Not only are federal funds being reduced but the cut will result in the loss of $30 to $50 million in matching funds from states, utilities and non-profits. The National Association of State Community Services Programs estimates that approximately 40,000 low-income families will be denied weatherization assistance if this cut is approved.

And when you combine the DOE cuts with the Administration's proposal to cut (HHS) LIHEAP funding from $3.2 billion in FY 2006 to $1.8 billion you are truly sending a message that low-income families cannot expect any help in controlling their energy costs and saving energy.

How do you justify this 41% reduction in the weatherization program?

Note: Last November, you, along with Senator Domenici sent a letter to Bodman and Portman expressing your opposition to a proposed transfer of the weatherization program from DOE to HHS (to be managed along with the LIHEAP program). Such a transfer would likely have resulted in lower aggregate funding for both programs. OMB stopped the transfer proposal but it appears they are going ahead with the funding cuts).

Answer. Weatherization is the largest-funded program in EERE, at the expense of other research, development and deployment programs. In order to address this country's energy challenges with the urgency it deserves, we have chosen to prioritize investments in energy efficiency and renewable energy R&D that have multiplicative returns, such as improvements to appliances and the building envelope that affect the whole American population, rather than additive returns not associated with technological R&D that target a single segment of the population, albeit an important one.

Moreover DOE is not seeking to transfer the Weatherization Assistance Program to the Department of Health and Human Services. This information is included in a letter sent February 6, 2007 responding to your previous inquiry.

In addition, the expected benefits of each EERE program are shown in our Congressional justification materials. A summary is present on page 31 and 32 of Energy Supply and Conservation (Volume 3). The table shows that the Weatherization and Intergovernmental Program has the lowest or near lowest expected benefits in all three benefit categories (consumer expenditure savings, carbon emissions reductions, and avoided oil imports). Details of our modeling efforts that produce these results will be available online by March 31, 2007 at http://www1.eere.energy.gov/ba/pba/gpra.html.

IMPACT OF THE CR

Question 10. May I have your assurance that, even as we debate and I hope defeat, the proposed FY2008, you will maintain Weatherization funding at the FY06 level in the Continuing Resolution and ensure that this program remains the valuable energy efficiency deployment program that it should be?

Answer. Under the Continuing Resolution for FY 2007, the Department will carefully weigh the costs and benefits of allocating resources to Weatherization and other programs in the EERE portfolio.

EPACT EFFICIENCY PROGRAMS

Question 11. Mr. Secretary, I was pleased to see that you have requested some additional funding for building technologies, including building energy codes and appliance efficiency standards.

Do you intend to implement the EPACT provisions relating to building efficiency in FY2008? For example sec 124—providing grants to states to set up energy efficient appliance rebate programs, sec 125 for energy efficient public buildings, and sec 128 providing incentives to the states to adopt and enforce building codes?

As you know, the energy used to operate the buildings in the US accounts for about 40 percent of total annual energy consumption and 43% of GHG emissions. The buildings we are constructing today will be around for another 50 years. The most up-to-date model energy codes have been adopted in only a handful of states (Residential: WA, CA, UT, IA, LA, OH, PA. Commercial: WA, OR, CA, UT, IA, IL, OH, PA, VT, ME, VA, NC, GA, FL).

I believe we should have a sense of urgency about improving building efficiency. This is an area where federal funds for outreach and training, as well as technology transfer can really make a difference.

Answer. The Department is implementing numerous activities that are consistent with EPACT authorities identified in your question. Specifically, the Department has many activities which provide both financial and technical assistance to state and local government to accelerate the adoption of energy efficient technologies and practices, including the State Energy Program (SEP) which provides financial assistance through formula and competitive grants to States. As you mentioned, outreach, training, and technology transfer are essential to accelerating market transformation. Consistent with that approach, the Department has requested funding in FY 2008 for building energy codes program which will provide both financial and technical assistance to states to adopt and implement energy efficient building codes.

Question 12. Please provide for the record a summary of DOE's activities to improve residential and commercial building efficiency in new and existing buildings.

Answer. The Buildings Technologies Program (BT) researches and deploys new technologies to make homes and commercial buildings more affordable, energy efficient, and better performing. It is implementing an integrated and aggressive plan required to achieve cost-neutral Zero Energy Homes by 2020, and Commercial Buildings by 2025. This plan also includes the acceleration of market adoption of these technologies and practices.

The Department is accelerating the adoption of clean and efficient domestic energy technologies through such activities as ENERGY STAR®, Rebuild America, and Building Energy Codes. ENERGY STAR® activities work to remove technical, financial and institutional barriers to the widespread awareness, availability, and purchase of highly efficient appliances, compact fluorescent lighting products, windows and otherproducts. DOE ENERGY STAR® is beginning to encompass advanced technology; for example, DOE recently issued a solid state lighting specification for ENERGY STAR®. The Building Technologies Program jointly administers, with EPA, Home Performance with ENERGY STAR® energy efficient home contracting project for existing homes. This project assists existing home owners make their homes approximately 30% more energy efficient through partnerships with state energy offices, utilities and non-governmental organizations. The project has completed about 22,000 homes thus far.

Our Rebuild America activities remove technical, financial and institutional barriers to the widespread awareness, availability and application of highly efficient buildings including building design, construction, retrofit and operations practices in commercial buildings such as schools and hospitals. The Building Energy Code activities will support the development and implementation of energy efficient building codes which increases the construction of more energy efficient buildings. Recently the Department issued building energy codes that are 30% more stringent than American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) 90.1-2004 and the International Energy Conservation Code (IECC) (2004). The Department is supporting efforts to encourage states and localities to adopt these aggressive higher levels.

The Department of Energy's research activities to improve efficiency in new residential building is coordinated through the Building America Program. These activities support efforts to develop strategies to integrate solar energy technologies and practices along with energy efficient designs and technologies into buildings with the goal of designing net zero energy buildings. To date, the. Building America Program has researched and developed Best Practices for 30% whole house energy savings in new homes for all U.S. climates evaluated against The Building America benchmark (Building America Benchmark, version 3.1, November 2003, National Renewable Energy Laboratory). Building America also provides research information for the ENERGY STAR® new homes program. These activities have resulted in more than 30,000 research homes and over 700,000 high efficiency homes being built in the past 10 years.

To improve the efficiency of commercial buildings, the Building Technologies Program is partnering with ASHRAE to develop Advanced Energy Design Guides for new commercial buildings that are 30% more efficient than the ASHRAE 90.1-2004 building code. We have completed the guides for small offices and retail stores. Advanced Energy Design Guides for schools, warehouses and lodging will be completed in FY 2007 and FY 2008.

Question 1. General idea: Why isn't DOE following its own policy of integrating cleanup with restoration? DOE's guidance regarding natural resource damage assessments, (Damage Assessment and Environmental Restoration Activities at DOE Facilities, October 1993, pp.40-41), states, "Whether a decision to prepare an NRDA [natural resource damage assessment] is made or not, the information derived from properly conducting the ecological risk assessment portion of the RI/FS [remedial investigation/feasibility study] which is part of cleanup process] can and should be

used to address NRDA concerns to improve remedial action decisionmaking." How is DOE currently using the NRDA process at LANL to improve remedial action decisionmaking?

Answer. The state regulator (New Mexico Environment Department) has issued a Consent Order (March, 2005) for cleanup activities at LANL that requires the Department to evaluate releases of hazardous constituents and to cleanup up those releases that pose a health risk. This Consent Order requires the Department to extensively sample the environment to identify contaminants and determine their impacts primarily through risk assessment techniques, including ecological risk assessments The Consent Order has been described by the New Mexico Environment Department as a comprehensive "fence-to-fence" legally binding order. The Department believes that the extensive sampling and cleanup action underway at LANL under this order may reduce or eliminate the potential for natural resource damages in the vicinity of LANL. Further, the Department believes that once sufficient data are collected under the Consent Order, it would be appropriate to conduct a Natural Resource Damage Assessment (NRDA). The Department has entered into discussions with the State of New Mexico, Native American Pueblos, and the Federal trustee representatives to form a Natural Resource Trustee Council for LANL. The purpose of the Council would be to ensure that protection and restoration of natural resources are integrated throughout the cleanup and to determine what assessments or sampling, if any, may be needed in addition to that conducted under the Consent Order. The Department intends to follow the integrated approach during the cleanup effort at LANL.

Question 2. General idea: Why isn't DOE taking advantage of cost savings that result from integrating cleanup and restoration? This policy also states that integration of NRDA and remediation activities should lower the total costs of a hazardous substance release to the public (p.43). For example, integration should lead to,the restoration of natural resource services sooner than a sequential approach, whereby natural resource damage are addressed only after the RUFS process is completed. Sooner restoration means less total damages, since NRDA damages accrue over time. Also, integrating the two processes will help ensure the selection of remedial actions that reduce the potential for natural resource damages, thereby minimizing the United States' liability for NRDA. How is DOE taking advantage of these potential cost savings at LANL?

Answer. The purpose of the DOE Policy of integrating the cleanup and restoration is to assure that there is enough sampling and analyses done so that the selected remedy will be effective, and will meet all requirements. The cost savings that is referred to, is the cost that would be incurred, if the final remedy were not effective, based on incomplete (or inappropriate) sampling and analysis. The ongoing sampling and analysis programs that the Department funds at Los Alamos National Laboratory are designed to assure that the "nature and extent" of contamination is fully understood, and informs the remedy selection. In 2005, after a lengthy negotiation process, the Department entered into an Order on Consent (Consent Order) with the State of New Mexico, under the Resource Conservation and Recovery Act (RCRA). This Order is very prescriptive, regarding sampling and analyses, and does meet the intent of DOE's policy to integrate cleanup and restoration. Because the cleanup is under RCRA authority, the state of New Mexico is the regulator, not the Environmental Protection Agency, which has lead regulatory authority under Comprehensive Environmental Response Compensation and Liability Act (CERCLA) cleanups. DOE believes that once sufficient data has been collected under the Consent Order, it would be appropriate to conduct a Natural Resource Damage Assessment (NRDA). It appears that an NRDA would be premature at this time.

Question 3. General idea: Is it possible that the cost savings from integration would cover the cost of NRDA, thereby conserving taxpayer dollars? It is my understanding that conducting a NRDA process is generally less expensive than conducting the remediation process, often by orders of magnitude. How much money does DOE estimate will be needed to conduct full remediation at LANL, and how does that compare to how much it will cost to conduct NRDA? Couldn't the cost savings from integration of the cleanup and restoration processes cover the cost of the restoration process?

Answer. The Natural Resources Damage Assessment (NRDA) process refers to the process of developing the correct sampling and analysis program that, in turn, would determine the extent of damages to natural resources, and would inform the scope for additional natural resource damage restoration. At the Los Alamos National Laboratory, the requirements for sampling and analyses are prescribed in the 2005 Order on Consent. The current planning estimates that the lifecycle cost of the LANL cleanup will be in excess of 1 billion dollars. The cost of the NRDA, if needed, cannot be estimated at this time.

ORPHANED AND ABANDONED WELLS

Question 4. Does the President's budget include funding for this important program? If not, why not?

Answer. The Department of Energy has not requested funding for section 349 of EPACT. The Departments of the Interior and Agriculture have primary responsibility for onshore oil and gas permitting on Federal land and are responsible for ensuring that industry complies with permit stipulations, including the proper plugging and abandonment of wells, and for cleaning up wells where the responsible party cannot be identified.

NUCLEAR MEDICINE

Question 5. For nearly 60 years, the Department of Energy has funded essential, fundamental nuclear medicine research. There is no funding elsewhere for this research. However, my understanding is that under this Administration there has been a significantly reduced level of funding. As you know, we anticipate providing more funding under the CR for the Office of Science.

Please tell me about the availability of funding for continuation or transition of this vital research.

This program has an amazing track record and if the Department of Energy does not allocate funding for this research in FY 2007 valuable research will not be conducted, and we will lose the researchers we need to ensure breakthroughs continue.

Answer. The Department appreciates your interest in nuclear medicine research. Currently, with the help of the National Academy of Science, the Department and the National Institutes of Health are conducting a study on "State of the Science in Nuclear Medicine" to gain perspective on the future of this program.

INDIAN ENERGY—TITLE V OF EPACT

Question 1a. Indian lands contribute 11% of the nation's onshore oil and natural gas production, and 11% of its coal production. Indian lands also contain a large number of untapped renewable energy opportunities. In recognition of this, congress established an Office of Indian Energy at DOE in Title V of the Energy Policy Act. Yet, the 2008 budget provides no funding for this Office. Instead, it merely continues a preexisting tribal energy program at a reduced funding level ($1.0 million proposed cut).

During last year's budget process you indicated that DOE was searching for a suitable candidate to run the office. A year later, there is no indication that DOE is attempting to comply with Title V of EPACT. Is there a timetable for getting the Office of Indian Energy up and running?

Answer. Since last year, the Department did meet with several potential candidates for the position of Director of the Office of Indian Energy Policy and Programs. However, as I have testified there are a number of requirements and provisions in the Energy Policy Act of 2005 (EPACT) that we have not funded because they are lower priority than activities included in the President's Budget, and establishing the Office of Indian Energy Policy and Programs as directed under Title V is one of them.

While there is no "timetable," we have taken several steps to properly manage and monitor Tribal issues at the Department in a consistent way. The Department has solicited input from interested tribal governments and tribal organizations on how it is envisioned that a new office would interact with the DOE missions, and how this office can improve on the current organizational structure. In addition, to assist us in coordinating our Tribal policies among various DOE programs, we have created a Tribal Energy Steering Committee comprised of representatives from all major program offices to address cross cutting Tribal issues.

Question 1b. You also represented last year that DOE was establishing a Tribal Energy Steering Committee. Has this group had any effect in helping Tribes access support from other DOE energy programs to promote Indian energy development and help increase electricity access on Indian lands?

Answer. The Tribal Energy Steering Committee ("Committee") has served as an important vehicle to address cross cutting Tribal issues. Composed of representatives from all of the major program offices that have interactions with tribes, the Committee has improved the communications about Tribal issues within the Department. This has allowed program offices to work together to assist tribes in a way that has not happened before. For example, the Committee worked together to provide technical assistance to a Tribal Colleges and Universities symposium. Also, the Committee worked with each program office's tribal constituents to ensure that all interested tribes had an opportunity to respond to drafts of the EPACT section

1813 report on energy rights-of-way across tribal lands. The Committee has also been an important sounding board to evaluate the effectiveness of the Department's American Indian and Alaska Natives Tribal Government Policy in order to ensure that the Department is properly carrying out its obligations in working with sovereign Indian nations. Lastly, because several tribal organizations have expressed an interest in meeting with the Committee to present tribal perspectives on issues of mutual interest, we will be making arrangements to meet with these tribal organizations.

Question 2. Section 979 of EPACT directs DOE to establish a research, development, and demonstration program that helps to address energy and water related issues affecting communities across the nation. Is there any funding for implementing Section 979 in the FY2008 budget? If not, why not? Please describe in detail any current activity within DOE related to the subject matter of Section 979, which may be ongoing as a result of funding provided in prior years.

Answer. The Department of Energy is evaluating options for both the management and implementation of Section 979 of EPACT and as such, the FY2008 budget does not contain funding for this program.

In FY 2005, in accordance with Congressional direction, the Department provided $12,400,000 to support a research and demonstration program to study energy-related issues associated with water resources and sustainable water supplies for energy production, including $1,984,000 to initiate planning and creation of a water-for energy technology roadmap; $3,472,000 for water technical assistance; $2,976,000 to continue the arsenic removal research in conjunction with the American Water Works Research Foundation; and $3,968,000 in support of desalination research consistent with the Water Purification Technology Roadmap in partnership with the Bureau of Reclamation. The Department also provided $496,000 for a report to Congress on the interdependency of energy and water focusing on the threat to national energy production resulting from limited water supplies, utilizing the multi-laboratory Energy-Water Nexus Committee. This report was sent to Congress on January 12, 2007.

In addition, in response to the FY 2006 Congressional direction accompanying the FY 2006 Energy and Water Development Appropriations Act, the Department funded $12,375,000 for energy and water resource management, including: $6,930,000 for advanced concept desalination and arsenic treatment in partnership with American Water Works Research Foundation and WERC: A Consortium for Environmental Education and Technology originally known as the Waste-management Education and Research Consortium; $1,980,000 for water supply technology development; and $3,465,000 for water management decision support including demonstration programs in partnership with the New Mexico Office of the State Engineer and international water partnerships.

STRATEGIC PETROLEUM RESERVE

Question 1. The most serious recent oil disruption was during Hurricanes Katrina and Rita, and the more pressing shortages were for refined product rather than crude oil. Could you explain how storing more crude oil in the hurricane-prone Gulf Coast makes our supply more secure?

Answer. When Hurricane Katrina came ashore on the Gulf Coast, it closed refineries, terminals, pipelines, and knocked out electrical power all along the coast. The first problem to surface was the inability of still operable refineries located throughout the South and Midwest to obtain feedstock. The Strategic Petroleum Reserve was able to satisfy the shortage by direct loans of oil to refiners from our Bayou Choctaw facility. However, that site has a small inventory and has a very limited drawdown capability. The new Reserve site in Richton, Mississippi is located about 85 miles inland from the Gulf, outside of the reach of truly devastating hurricanes. The design of the site provides for a pipeline connection with Capline, the large diameter pipeline delivering oil to refineries along the Mississippi River throughout the Midwest. The connection will be north of the area where electric power would be expected to be seriously disrupted by hurricanes. Furthermore, the site will have a direct pipeline linkage with a large refinery in Pascagoula and provide marine distribution to service the refineries southeast of New Orleans which are now vulnerable to crude oil disruptions.

Question 2. Have you conducted a study to determine what kind of price effect we should expect from a doubling of the reserve?

Answer. We have not conducted a study on the price effect of doubling the Strategic Petroleum Reserve. We anticipate filling the Reserve at about 100,000 b/d and this rate should have a negligible effect on market prices.

Question 3. Has the Department considered having an "escape value" so that the reserve would not be filled during times of escalating oil prices, potentially adding further upward price pressure?

Answer. The Department intends to comply fully with the acquisition procedures for the Strategic Petroleum Reserve oil required by Section 160 of the Energy Policy and Conservation Act, 42 U.S.C. 6239, as amended by Section 301(e) of the Energy Policy Act of 2005, 42 U.S.C. 6240. Those procedures, contained in a Final Rule issued on November 8, 2006 (71 F.R. 65376), were written to assure that the Department gives due consideration to virtually every aspect of markets before it begins an acquisition. We take very seriously the proviso of section 301(e) of the Energy Policy Act of 2005 that the Department should minimize the costs to the Department of the Interior and the Department of Energy and avoid adversely affecting current and future prices and supplies, and inventories of oil.

Question 4. Has the Department considered offering any guidelines on when reserve oil should be released?

Answer. The authority to drawdown and sell oil from the Strategic Petroleum Reserve is reserved to the President upon a finding of a "severe energy supply interruption" and is not delegated. The Energy Policy and Conservation Act defines "a severe energy supply interruption" and no President has constrained his discretion to interpret the definition to respond to any specific event. However, the Administration has been very clear that it will not use the Reserve to control oil prices.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR DOMENICI

SOLID STATE LIGHTING RESEARCH

Question 1. As you know, Sandia National Laboratories is a world leader in solid state lighting technologies. In May 2006, the Office of Science released a report entitled Basic Research Needs for Solid-State Lighting which was based on a workshop sponsored by Basic Energy Sciences. The report notes in its executive summary that solid state lighting has the potential to drastically reduce energy use for producing artificial light, and that achieving efficiencies approaching 100 percent are conceivable. However, several "grand challenges" will require basic research to achieve this potential in reality.

Why then does the FY 2008 budget include no funding for basic research in solid-state lighting?

Answer. The FY 2008 budget includes increases in the Materials Sciences and Engineering subprogram in the physical behavior of materials, in synthesis and processing, and in materials chemistry that address fundamental condensed matter and materials physics underpinning aspects of solid-state lighting. In particular, there is funding for new activities in inorganic and organic light-emitting materials, with emphasis on novel materials or concepts, including nanophotonics and other nanoscale material assemblies and architectures; in the design and synthesis of nanoscale materials; and in the design and synthesis of biomolecular organic materials for electronic applications. The total requested for these activities is $6,000,000.

TECHNOLOGY TRANSFER COORDINATOR

Question 1. Section 1001 a the Energy Policy Act of 2005 directs the Department to appoint a technology transfer coordinator, and to create a technology commercialization fund using 0.9 percent of the amount made available to the Department for applied energy research, development, demonstration, and commercial application. The section also requires the Department to produce a report on its plan to execute these requirements, along with regular updates on its progress in this area.

When will the Department appoint a technology transfer coordinator as required by the statute?

Answer. Under the direction of the Under Secretary for Science, the Department has a working group studying implementation of the statutory requirements of section 1001 of EPACT 2005, including alternatives for the coordinator position and the supporting organizational structure. Based on input from the working group, the Department will be in a position to determine the steps to be taken under section 1001 and prepare an implementation plan for my consideration.

Question 2. Why does the FY 2008 budget fail to describe how the Department will and [sic] use the Technology Commercialization Fund?

Answer. The Department has not made specific allowances for the technology transfer fund in the FY 2008 request pending appointment of a technology transfer coordinator and development of an implementation plan.

SCIENCE EDUCATION ENHANCEMENT ACT

Question 1. Section 1102 of the Energy Policy Act of 2005 requires the Department to establish a Science Education Enhancement Fund, comprised of not less than 0.3 percent of the amount made available to the Department for applied energy research, development, demonstration, and commercial application. The intent of the provision was to create a centralized fund that would be administered by a single Department official specializing in science education.

When will the Department establish a centralized Science Education Enhancement Fund as directed in statute?

Answer. The Department of Energy's General Counsel advises that Section 1102 does not require establishment of a "centralized" Fund. General Counsel advises that so long as DOE uses at least 0.3 percent of the applicable appropriated funds for the authorized education activities, the Department is in compliance with section 1102.

Question 2. How will the Department use the Fund to support science education and outreach programs at the National Laboratories?

Answer. Consistent with the principles of the Academic Competitiveness Council (established by Section 8003 of the Deficit Reduction Act of 2005; it is chaired by Secretary Spellings and I am a member), the Department is working with other agencies to undertake a thorough, merit-based review of government-wide education and outreach efforts to ensure that they are effective and have the ability to measure their outcomes. The Department will be a much better position to address your question once this review is complete in the near future.

HYDROGEN TECHNOLOGY/ADVANCED BATTERY R&D

Question 1. The request for Hydrogen Technology includes over $190 million for fuel cell R&D for vehicle applications. The FY 2008 budget also includes $42 million for advanced battery R&D for advanced vehicles such as plug-in hybrids. However, fuel cell vehicles are significantly further away from commercialization than plug-in hybrids—perhaps even decades further away.

Why is the Department investing nearly five times as much in fuel cell R&D than in advanced battery R&D when advanced batteries could produce significant petroleum savings in a far shorter timeframe?

Answer. The Department's investments in hybrids, plug-in hybrids and batteries exceeds investment in fuel cell R&D. The FY 2008 budget request includes $54.5 million to support fuel cell technology for vehicle applications. Both fuel cell technology and advanced battery R&D are components of the President's Advanced Energy Initiative (AEI), which is designed to change the way we power our homes, businesses, and vehicles. The President's FY 2008 budget includes over $80 million for hybrid vehicle R&D, $42 million of which supports advanced battery R&D, such as batteries for plug-in hybrid vehicles. This includes work on long-life, abuse-tolerant lithium batteries and more advanced high-power batteries along with power-control systems and components that are optimized for plug-in hybrids. The $54.5 million to support fuel cell technology for vehicle applications includes $44.0 million for Fuel Cell Stack Components R&D, $8.0 million for Transportation Fuel Cell Systems, and $2.5 million for Manufacturing R&D.

INDIAN ENERGY

Question 1. Mr. Secretary, there are vast untapped energy resources on American Indian lands. The ODE estimates that 890 million barrels of oil and 5.6 trillion cubic feet of natural gas are located on American Indian land. Title V of the Energy Policy Act of 2005 directs the Secretary of Energy to undertake several activities to help the Indian nations develop these resources. This has not been done, nor has any money to implement Title V been requested by DOE for FY2008.

Why was no money requested to carry out Title V of the Energy Policy Act of 2005?

Answer. Title V is one of a number of requirements and provisions in the EPACT that we have not funded because it is lower priority than other activities included in the President's Budget. However, the Office of Energy Efficiency and Renewable Energy has requested $2.9 million for Fiscal Year 2008 to fund projects for Native American peoples. From 2002 to 2006, approximately $12.5 million has been made available to Native American tribes to assess the potential for development of renewable energy technologies on tribal lands. Overall, the Department provides approximately $10 million annually to tribal programs nationwide.

Question 2. When do you anticipate you will create the Office of Indian Energy Policy and Programs?

Answer. The Department is actively seeking a suitable candidate to serve as Director of the Office of Indian Energy Policy and Programs. Until such a candidate is found, I have asked the Under Secretary of Energy and the Assistant Secretary for Congressional and Intergovernmental Affairs to closely monitor and manage Tribal issues. The Department also has solicited input from interested tribal governments and tribal organizations on how it is envisioned that a new office would interact with the DOE missions, and how this office can improve on the current organizational structure. In addition, to assist us in coordinating our Tribal policies among various DOE programs, we have created a Tribal Energy Steering Committee comprised of representatives from all major program offices to address cross cutting Tribal issues.

Question 3. Please describe your progress in establishing the Department of Energy Indian Energy Education Planning and Management Assistance Program.

Answer. Given that the Office of Indian Energy Policy and Programs has not been established, the Administration has not requested funding in FY 2008 for the Indian Energy Planning and Management Assistance Program.

Question 4. Please describe your progress in establishing the department of Energy Guarantee Program in Title V.

Answer. EPACT contains several loan guarantee provisions. The Department is proceeding to use the broad authority provided in Title XVII-Incentives for Innovative Technologies. For this loan guarantee program, the Department anticipates loan guarantees of $9 billion in FY 2008 and has requested $8.4 million for operating expenses in FY 2008.

ENERGY RIGHTS-OF-WAY DESIGNATION

Question 1. Mr. Secretary, Section 368 of the Energy Policy Act of 2005 directs the Secretary Energy, in collaboration with other agencies, to designate energy rights-of-way corridors. Please provide the Committee with an update of your activities under this provision.

Answer. The agencies affected by Section 368 began work shortly after the Energy Policy Act of 2005 was enacted in August 2005. At that time, an interagency team was established with the Department of Energy (DOE) as the lead agency. The Bureau of Land Management is a co-lead, and the Forest Service, the Department of Defense, the Fish and Wildlife Service and the States of California and Wyoming are cooperating agencies. The Coeur d'Alene tribe is also a cooperating agency. In addition, the Department of Commerce is involved as a consulting agency. Pursuant to EPACT Section 372(a), a Memorandum of Understanding (MOU) was signed by the four main agencies in February 2006 with respect to cooperative implementation of Section 368.

There is ongoing involvement from the States, tribes and various stakeholders as the Federal agencies affected by Section 368 continue progress of the energy right-of-way corridor designations on Federal lands. In this regard, the Federal agencies have conducted joint public scoping meetings concerning the designation of such corridors in each of the eleven contiguous western states. Currently, agencies are conducting NEPA activities.

NATURAL GAS AND OIL TECHNOLOGY PROGRAMS

Question 2. Consistent with the President's FY 2006 and FY 2007 budgets, you again propose the elimination of the natural gas and oil technology programs within the Office of Fossil Energy for FY 2008.

Are there activities currently undertaken by either the Natural Gas or Oil Technology Programs that you plan to continue if those programs receive no funding in FY 2008?

Answer. The FY 2008 Budget provides no money for activities currently undertaken by either the Natural Gas or Oil Technology Programs. However, prior years' appropriations for Natural Gas and Oil Technology Programs will be used for the activities specified, which could extend beyond the year in which funds were appropriated.

ULTRA-DEEPWATER AND UNCONVENTIONAL NATURAL GAS

Question 1. What steps, if any, has the DOE taken to implement this program?

Answer. DOE has completed all of the milestones required by section 999, including soliciting proposals for the program consortium and selecting a winning proposal. On December 29, 2006, a contract was awarded to the Research Partnership to Secure Energy for America to manage the R&D program. DOE has also established the two Federal Advisory Committees required by the statute. Through a separate legislative proposal, the Administration in FY 2008 proposes to repeal the

Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources program. This is consistent with our proposal to end all Departmental oil and natural gas research and development in FY 2008. Oil and gas are mature industries and both have every incentive, particularly at today's prices, to enhance production and continue research and development of technologies on their own. There is no need for taxpayers to subsidize oil companies in these efforts.

Question 2. Have any potential applicants demonstrated an interest in the program?

Answer. Although the private sector consortium, Research Partnership to Secure Energy for America (RPSEA), is responsible for issuing solicitations, we presume that a number of organizations are interested in submitting project proposals for the program.

Question 4. What role, if any, do you believe the DOE should have in advancing technology for the development of ultra-deepwater and unconventional fossil fuels?

Answer. Oil and gas are mature industries and both have every incentive, particularly at today's prices, to enhance production and continue research and development of technologies on their own. There is no need for taxpayers to subsidize oil companies in these efforts.

HYDROPOWER

Question 1. Once again, the budget proposes to terminate the DOE Hydropower program (−$500,000) and transfer the R&D results to industry. However, the Energy Policy Act of 2005 (Section 931) directs DOE to conduct a research, development, demonstration and commercial application program for cost competitive technologies for new and incremental hydropower capacity. In the FY 2007 Energy and Water Appropriations bill, $4 million was included for advanced hydropower R&D, such as the development of ocean energy.

Does the Administration believe that federal R&D work is needed to develop new hydropower technologies, such as ocean and wave energy?

Answer. The Department completed its hydropower program in fiscal year 2005, consistent with congressional direction over the previous years. With regard to new hydropower technologies, at that time the Department completed an assessment of undeveloped U.S. hydropower resources, the technologies needed to develop the resources, and the feasibility of developing the resources. The Department has contributed the necessary tools to industry to pursue development of these hydropower resources.

The Department is observing the growth of interest, activity, and investment in wave and tidal technologies. We recognize that several states have promising opportunities for harnessing these forms of ocean and tidal energy, and thus we are monitoring domestic and worldwide progress in ocean energy technologies in collaboration with the Electric Power Research Institute and the International Energy Agency. Some countries with higher resource potential than the United States, relative to their overall energy needs, are active in ocean and tidal energy R&D. Ocean, wave, and current technologies are still in their infancy, with a small number of demonstration systems operating worldwide. The Department will continue to consider emerging technologies like these in evaluating its research, development and deployment programs.

The Department is also supporting a wave energy technology R&D project via the Small Business Innovation Research Program. The U.S. Navy also supports ocean energy research.

ENERGY SAVINGS PERFORMANCE CONTRACTING

Question 1. The ESPC program was reauthorized in EPACT 2005.

Has the Administration taken advantage of the ESPC reauthorization in the Energy bill?

Answer. Yes, the Administration, through the Department of Energy, is very actively promoting the use of Energy Savings Performance Contracting (ESPC) across all Federal agencies. Assistant Secretary Karsner challenged all agencies to increase their use of the program at the July 2006 Senior Officials meeting, by kicking off an "ESPC Blitz" to bring focus and commitment to these private sector financing tools, and sought to double volume to help the government stay on track to meet the new EPACT energy efficiency goals (two percent per year energy intensity reduction compared with 2003 baseline). The four-month Blitz resulted in Awards of over $130 million and helped propel 2006 to over $321 million in awards—the second highest amount of annual contract awards made in the history of the program. The total 2006 investment will produce cumulative guaranteed energy savings of 48,880 billion Btus over 24 years at no net cost to taxpayers.

Question 2. What are your plans for engaging those agencies that are not currently using ESPCs to improve their energy performance?

Answer. The President's new Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management requires all Agencies to improve their energy performance. We anticipate continued use of ESPCs to help agencies meet the new, aggressive energy intensity reduction goal of Executive Order 13423 (three percent per year compared with 2003 baseline). Our efforts to spur widespread use of ESPCs include the designation of Energy Champions at a senior level in all agencies to ensure that these contracts are successfully and widely implemented. DOE's Federal Energy Management Program provides training, project facilitation, promotional materials, and program advocacy to senior agency officials. FEMP is also involved with specific outreach and support to agencies not actively using the contract.

ELECTRIC TRANSMISSION AND DISTRIBUTION

Question 1. Last August, the Department released the first National Electric Transmission Congestion Study, as required by EPAct. The study identified two areas of critical transmission congestion: southern California and the eastern coastal area from metropolitan New York south to Northern Virginia. However, no corridor designations have been made yet.

When will DOE designate National Interest Electric Transmission Corridors?

Answer. Section 1221(a) requires the Secretary to issue a report based on the August 8, 2006 Congestion Study. In that report, the Secretary, at his discretion, may designate any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers as a National Interest Electric Transmission Corridor (National Corridor).

In the August 8, 2006 Congestion Study, the Department invited the public to comment on the designation of National Corridors. The Department continues to evaluate these comments, and has not yet determined whether, and if so, where, it is appropriate to designate National Corridors. Because there is broad public interest in the implementation of Section 1221(a), the Department has decided that, prior to issuing a report that designates any National Corridor, the Department will first issue a draft designation to allow affected states, regional entities, and the general public additional opportunities for review and comment.

Question 2. Why haven't designations been made yet?

Answer. Departmental staff have been reviewing the 400 plus comments received in response to the August 8 Congestion Study. The staff is continuing to analyze the data developed in the Congestion Study and provided by commenters, as it develops a recommendation for the Secretary as to whether, and if so, where, one or more National Corridors should be proposed.

POWER MARKETING ADMINISTRATIONS—BPA NET SECONDARY REVENUE PROPOSAL

Question 1. The Administration has re-proposed an administrative action to direct BPA to use any net secondary-market revenues in excess of $500 million per year to make advance payments to the U.S. Treasury on Bonneville's bond obligations. This proposal was vehemently opposed by the Pacific Northwest Senators last year. You carried language in the 2006 supplemental appropriations bill that prohibited funding for this initiative. The prohibition is set to expire in April 2007.

Last year, the Administration's proposal to tie up Bonneville's net secondary market revenues was met with fierce opposition in Congress—so much so that its implementation was stopped. Do you think the sentiment in Congress has changed?

Answer. The Administration is hopeful that the sentiment of all the involved parties is open to working collaboratively to address issues raised in the budget. The President's budget for FY 2008 allows for and encourages a regional discussion to address the concerns expressed by the Pacific Northwest Congressional delegation and Bonneville Power Administration (BPA) customers. The budget proposal continues to seek means to extend limited BPA access to capital for regional infrastructure investment with minimal rate impact.

Question 2. It is my understanding the BPA has voluntarily paid $1.8 billion in advanced payments to the Treasury on its bond obligation. It has also invested heavily in its transmission system. Why then, does the Administration continue to pursue this action—especially since you concede that "due to the volatility of energy prices, these net secondary revenues could be higher or lower depending on a number of factors, including hydro variability"?

Answer. The $1.8 billion in voluntary advance amortization payments BPA has made in recent years, as of the end of FY 2006, has enabled BPA to prudently preserve the availability of its authorized borrowing for infrastructure investment.

Similarly, the budget proposal is about developing further sound business practices that would use a portion of any higherthan-historical net secondary revenues, greater than $500 million, to invest back into energy infrastructure in the region and to pay down debt. Revenues from this source, while highly variable, can be significant. Without this proposal, the budget projects BPA will reach its U.S. Treasury borrowing cap in FY 2012; however, if the net secondary revenue proposal is implemented and combined with other debt management tools, BPA likely would not reach its borrowing cap until FY 2016.

POWER MARKETING ADMINISTRATION—SEPA/SWPA/WAPA

Question 1. The Administration re-proposes an administrative action to raise the interest rate for power-related investments incurred by the PMAs and paid to the Treasury from the "yield" rate to the "agency rate."

This PMA proposal also faced significant Congressional opposition last year. Both the FY 2007 Energy and Water Appropriations bill and the Continuing Resolution (CR) currently under consideration carry a prohibition on its implementation. The Budget, however, proposes to make the new interest rate retroactive to the beginning of FY 2007.

Given the significant opposition to this proposal last year, along with it modest revenue gains (only $2-3 million annually), why does the Administration continue to pursue this?

Answer. The Administration believes it is prudent to charge the PMAs (excluding Bonneville Power Administration), a risk-adjusted interest rate that more accurately reflects the probability of repayment of the Federal investment in power systems infrastructure and all costs associated with producing power. Although the PMAs pose a low risk of default to the U.S. Treasury, the risk is not zero. This is because the ability of the PMAs to repay the Treasury is dependent on their ability to collect revenues from the sale of power and related services. For example, physical catastrophes (e.g. a dam failure), electricity market volatility, problems with customer credit, or availability of cheaper energy sources could adversely affect the PMAs' ability to market their power in the future.

The "yield" rate is the rate paid on securities backed by the full faith and credit of the United States Government. The "agency rate" of interest paid by government corporations and the Bonneville Power Administration better reflects the risk of default than the "yield" interest rate the three PMAs currently use on investments whose interest rates are not set by law.

Question 2. The Administration re-proposes an administrative action to raise the interest rate for power-related investments incurred by the PMAs and paid to the Treasury from the "yield" rate to the "agency rate."

This PMA proposal also faced significant Congressional opposition last year. Both the FY 2007 Energy and Water Appropriations bill and the Continuing Resolution (CR) currently under consideration carry a prohibition on its implementation. The Budget, however, proposes to make the new interest rate retroactive to the beginning of FY 2007.

Does the Administration believe it can make this retroactive to the beginning of FY 2007 even with the prohibition contained in the CR?

Answer. No. The provision in the recently enacted Continuing Resolution, Public Law 110-5, will delay implementation of this change until FY 2008. The Administration will seek to apply the new interest rate on capital investments occurring in FY 2008 and later.

PMA CONTINUING AND EMERGENCY FUNDS

Question 1. The Administration proposes to set the recovery period for future emergency Purchase Power and Wheeling costs funded through the PMA Continuing and Emergency Funds from ratepayers within one year from the time costs are incurred. Currently, PMAs can recover costs anywhere from one year to as long as five years.

If these funds are being tapped due to an emergency situation, why put such a severe restriction on the time for repayment? Won't a more reasonable amount of time help ease the burden of increased rates to ratepayers?

Answer. The Administration believes that expenses paid through the Continuing/Emergency Funds, associated with purchasing power and transmission wheeling services, should be considered annual expenses and repaid within one year. This proposal does not apply to the use of the Continuing/Emergency Funds for the purpose of performing emergency maintenance, or any activities other than the provision of purchase power and wheeling services. Additionally, while the current power marketing administration (PMA) repayment processes assure that over time the

Federal Treasury is made whole for all purchase power and wheeling expenses, with interest when those expenses are deferred into future years, they do not preclude unplanned impacts to the Federal budget deficit in the short term. When the PMAs use the Continuing/Emergency Funds and do not increase revenues to compensate for the use of those funds in the short term, the budget deficit for the current fiscal year is negatively impacted. The Administration's proposal would mitigate these deficit impacts. Finally, it should be noted that the Administration's budget provides additional authority to the Southeastern and Southwestern Power Administrations to use power receipts (offsetting collections) to fund these purchases, and Western Area Power Administration's budget continues to provide substantial budget authority in this area. This reduces the need to rely on the Continuing Funds and Emergency Fund, by allowing the PMAs to fund purchase power and wheeling expenses through their power receipts. The Administration is working to implement this budget proposal in a manner that will treat annual expenses appropriately and mitigate deficit impacts, while keeping power rate impacts in check.

NUCLEAR POWER 2010

Question 1. Mr. Secretary, the Joint Resolution for FY 2007 provides the Department a significant amount of latitude to meet your funding priorities. With regard to nuclear power, the Energy and Water Appropriations Subcommittee also provided an additional $41 million in funding for nuclear power R&D.

I am very concerned about the Nuclear Power 2010 program. This program, as you know is a 50/50 cost share effort between reactor designers and the federal government to develop the detailed engineering and design plans necessary to submit a successful license application to the Nuclear Regulatory Commission.

Also, as I understand it, one of the goals of the NP2010 program is to support the engineering designs for the various reactor types. It is my impression that in the absence of engineering specifications for the designs, the vendors are unable to provide reliable pricing information to their potential customers. Obviously, this is an obstacle to the customers actually placing orders and making a commitment to build.

Can I count on the Department to make the NP2010 program a priority in FY 2007 and use the funding flexibility provided in Joint Resolution to fully fund this initiative?

Answer. The Nuclear Power 2010 Program remains a very high priority for DOE. The Department will use the funding flexibility provided in the Joint Resolution to appropriately fund the approved projects of this important nuclear energy initiative.

Question 2. What is the department doing to accelerate the completion of the design engineering for reactor types?

Answer. In addition to supporting the reactor vendor activities for design certification and completion of the reactor design and engineering required to support the power companies' combined construction and operating licenses, the Office of Nuclear Energy is supporting the reactor vendor design scope through a more flexible cost share ratio each fiscal year under the cooperative agreements that will allow the reactor vendors to accelerate design work in fiscal year 2007 originally planned in the outyears. As allowed for in the solicitation and in the negotiated awards, the industry or the government can provide more than 50 percent cost share during any given fiscal year provided by the end of the project industry has paid at least 50 percent of the total project costs.

LOS ALAMOS NATIONAL LABORATORY (LANL) RESPONSE TO SECURITY FAILURES

Question 1. Mr. Secretary, Director Anastasio has taken steps to increase security at LANL by increasing random searches and drug testing. As I understand it, Los Alamos security now exceeds all other DOE labs and even DOE Headquarters.

Do you believe the Lab has taken appropriate action and will you consider applying the same level of security to the NNSA and its other facilities?

Answer. At this stage, Los Alamos National Security (LANS) is aggressively tackling the long-standing security issues at the Laboratory. However, I remain concerned that we may yet see a repeat of the past practices, where the Laboratory has started off well in fixing their problems, but gradually loses interest as time passes. DOE and NNSA will be watching LANS carefully to ensure this is not the case.

All of our sites conduct random searches based upon their unique site configuration. It is my sense that because of the way in which LANL security areas are spread out, the Laboratory has a greater need for outbound searches than other sites.

Drug testing employees is something we are paying close attention to and I will consider this option for wider use after I hear the recommendations from the Personnel Security Task Force I established to identify policy and procedure weaknesses in our current personnel security program.

LOSS OF PERSONNEL DATA

Question 1. What is the Department doing to encrypt and protect personal employee data to ensure that information has the same level of protection that applies to classified information?

Answer. Consistent with the requirements of the Privacy Act and Office of Management and Budget direction, the Department has issued direction to all Departmental elements to implement procedures and controls for the protection of personal employee data. The controls include removal of sensitive data from computers and devices unless it is required for business reasons; encryption of all removable disks and portable computers (laptops) containing the sensitive information; encryption of emails and attachments containing sensitive information; delegation of management responsibility for the review of personally identifiable data; and regular management reviews of the personally identifiable information which may be retained on the portable computers and removable media. Additional controls include reporting of actual or suspected loss of personally identifiable information within 45 minutes of the detection of the loss.

MOX PROJECT

Question 1. What is the Department doing to control costs of this project and bring the project in on budget?

Answer. The Department is taking a number of actions to ensure that the MOX facility can be built within its cost and schedule baseline. The design of the U.S. MOX facility is approximately 85% complete and is based on existing French facilities that have been operating successfully for decades. In addition, the Department's contractor has proven the performance of key process units. Following extensive environmental and safety reviews, the Nuclear Regulatory Commission has authorized the Department's contractor to proceed with construction. This past summer, the Department conducted an External Independent Review of the MOX project to validate its cost and schedule baseline. The review involved a thorough examination of technology maturity, facility design, contractor bases of estimates, project risk, and many other areas. The EIR resulted in a $359 million increase to the project baseline and provision made for 28% contingency. The Department will also incorporate an incentive fee structure in the construction and operations contract to control cost growth and schedule slippage and require the contractor to develop cost ceilings (i.e., target costs tied to incentive fees) that must be agreed to by DOE. The current baseline of $4.7 B is contingent upon adequate funding support from the Congress, consistent with the schedule and baseline. Bids received to date on a number of large construction and long-lead equipment procurement packages are within the project's cost estimates and well within the baseline range.

Question 2. If the MOX facility does not go forward as planned, what impact will this have on the Department's efforts to consolidate and dispose of special nuclear material in Washington, California, Idaho, New Mexico, Tennessee and South Carolina?

Answer. The Nuclear Materials Disposition and Consolidation Coordination Committee (NMDCCC), which was created in 2005, recently recommended that Pu-239 not intended for use in the MOX Facility be consolidated at SRS. This decision whether to consolidate Pu-239 at SRS is dependent on appropriate NEPA review and on compliance with current law. The current law would require the Department to identify a path out of the State for Pu-239 before we begin to consolidate. Our current path includes MOX, Pu Vitrification, and H-Canyon.

I am currently reviewing this recommendation.

BIOFUELS/LOAN GUARANTEES

Question 2. What other steps is the Department taking to facilitate efforts to accelerate the deployment of this technology?

Answer. In addition to a comprehensive research and development portfolio, the Department strongly supports the commercialization of cellulosic ethanol technologies. We conduct cost-shared projects to accelerate the reduction in the costs associated with feedstock production, collection, storage and transportation, thereby addressing a major barrier to realizing cost competitive cellulosic ethanol. We are leading efforts with industry to further reduce costs by validating the integrated biorefinery process at the engineering pilot scale. We expect these efforts to reduce the

overall risks of deployment and improve the likelihood that private sector entities may obtain financing for commercial scale biorefineries. We also plan to support at least one public/private cost-shared commercial-scale demonstration of innovative biorefinery technology that will produce cellulosic ethanol and provide documentation on both feedstock and conversion process economics.

Furthermore, a ready infrastructure is necessary to encourage continued market growth for ethanol fuels. To this end, the Department is working to enable the availability of retail stations and terminals, analyze ethanol pipelines and alternative distribution mechanisms, and support vehicle technologies to ensure there is adequate demand for ethanol supply.

Question 3. Will you report to us regarding the prospect for commercial production of cellulose ethanol to begin as early as 2009?

Answer. The cellulosic ethanol industry is beginning to take shape. Recently, announcements have been made in the press by industry leaders on construction plans for the first U.S. cellulosic ethanol facilities. Additionally, winners of DOE's solicitation for cost-shared commercial-scale demonstrations will soon be announced and are expected to break ground within 12-18 months, after negotiations of terms of the agreement. These cellulosic ethanol facilities have the potential to be operational in the 2009-10 timeframe. Assuming the commercial operations proceed in line with development plans that have been made public by private sector participants at this time, we estimate that up to approximately 130 million gallons may be in commercial production each year by 2012.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR CANTWELL

Question 1a. Secretary Bodman, the Administration has once again proposed to confiscate BPA's net secondary revenues, this time for an estimated $646 million over the next five years. This is money that would otherwise go to keep Northwest business competitive and keep electricity rates for Northwest families affordable.

Please provide any analysis that was done on how this proposal would impact the Northwest economy?

Answer. BPA has not done an analysis on how the proposal would affect the Northwest economy. BPA is seeking to work with the Northwest parties to find ways of minimizing rate impacts of the proposal, if any, and any consequent impacts.

Question 1b. How much would this proposal increase electricity rates for the typical residential customer?

Answer. In general, we believe that the prepayments in most years are unlikely to cause a rate increase although it may reduce a BPA rate decrease. It is difficult to predict how a customer utility would pass on this impact to retail residential customers because each customer differs in terms its fmancial situation and its reliance on BPA.

Question 1c. How many Northwest jobs will be lost from this rate increase?

Answer. BPA has not done any analysis of job impacts of this proposal. BPA is seeking to work with Northwest parties to find ways of minimizing rate impacts of the proposal, if any, and any consequent economic impacts.

Question 1d. How much money will be taken out of the Northwest economy each year under this proposal?

Answer. The FY 2008 budget includes estimates of expected incremental revenues associated with the net secondary revenue proposal. The estimates are included within the gross revenue and net outlays estimates for BPA for the fiscal years 2008 through 2012. The incremental revenue estimates are: $91 million for FY 2008; $112 million for FY 2009; $107 million for FY 2010; $116 million for FY 2011, and $107 million for FY 2012, for a total of $533 million for the FY 2008 through FY 2012 period.

These incremental revenues are expected values, or averages, based on a range of possible net secondary revenues. BPA's net secondary revenues vary considerably due to the variability and unpredictability of the water supply in the Columbia River basin and the volatility of market prices. Therefore, the actual amounts could be much lower or higher than these expected values, depending on BPA's actual secondary revenues.

Finally, any value that might leave the region would eventually be returned to the region through reduced interest and principal payments on BPA's current Federal debt as well as increased access to capital from the Treasury.

Question 2. Secretary Bodman, as you know BPA's authority to set rates is provided for in several federal statues. These statutes direct that the BPA Administrator "shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to con-

sumers consistent with sound business principles." BPA has consistently interpreted this congressional direction to mean repayment occurs "over the period that Congress specified in an appropriations bill or in the term for the bonds used to finance the project." Combined with the "lowest possible rates consistent with sound business principles" standard, this means that the rates should be no lower, nor higher than necessary to repay the rates in the period specified. The "sound business principles" means-repayment on the scheduled repayment date and does not mean prepayment of long-term debt. Otherwise the "lowest possible" portion of the equation would be violated. Given these existing statutes, please explain the Administration's rational the legal basis for proposal to expropriate BPA's net secondary revenues.

Answer. The rationale and legal basis for the Administration's proposal is thoroughly set forth in a letter and attached memorandum dated June 23, 2006, from Department of Energy General Counsel David R. Hill to Senators Burns, Cantwell, Craig and Smith.

Question 3. Secretary Bodman, we are pleased that this year's budget does not include the onerous and counterproductive proposal that would have counted third-party financing against BPA's borrowing authority from the U.S. Treasury. BPA has stated that it plans to move forward immediately to seek third-party financing opportunities. This will remove the need in the near future for any increase in borrowing authority. Therefore, based on OMB's assertion that the net secondary revenue plan is needed in order for BPA to be able to invest in new transmission projects without hitting the borrowing cap; can you explain the justification for including it in this year's budget when clearly hitting the cap is not an issue? Based on OMB's assertion that the net secondary revenue plan is needed in order for BPA to be able to invest in new transmission project without hitting the borrowing cap; can you explain the justification for including it in this year's budget when clearly hitting the cap is not an issue?

Answer. While hitting the Treasury bonds outstanding cap, is not an immediate concern, it is the Administration's belief that it is nevertheless prudent and consistent with sound business principles to plan to in advance to preserve Bonneville's existing borrowing authority for as long as possible. The President's 2008 budget proposal is intended to provide BPA with needed financial and planning flexibility to invest back into the Northwest's economic energy infrastructure by paying down existing Federal bonded debt more quickly. The Administration is concerned about the adequacy of financing needed for BPA investments in transmission and other infrastructure needs. It believes that in times of historically very high net secondary revenues, it is prudent to bank some of these revenues by making advance bond amortization payments.

The proposal would extend the period before BPA runs out of available borrowing authority, thus helping BPA fund needed energy and transmission infrastructure investment. Without this proposal, the budget projects BPA will reach its U.S. Treasury borrowing cap in 2012; however, if the proposal is implemented and combined with other debt management tools, BPA likely would not reach its borrowing cap until 2016.

Question 4. Secretary Bodman, as you may know, the Northwest has led the nation in building new transmission, investing more than $1 billion in system upgrades since 2001. In fact, the Northwest alone accounted for a third of all the transmission built nation-wide in 2004. Since, it is a stated goal of the Administration's energy policy to build more transmission capacity, how does the net secondary revenue proposal improve investments in transmission infrastructure?

Answer. The budget proposal seeks to extend BPA's limited access to capital needed for funding future regional infrastructure investment. Without this proposal, the budget projects BPA will reach its U.S. Treasury borrowing cap in 2012; however, if the proposal is implemented and combined with other debt management tools, BPA likely would not reach its borrowing cap until 2016. If budget estimates are met, the proposal should provide an additional $646 million over the FY 2008-2012 time period, which would be available for investments in transmission system infrastructure.

Question 5. Secretary Bodman, BPA is not only paying down its debt to the treasury on time, but is doing so ahead of schedule at an above market interest rate; that is the government is actually making money by financing Northwest infrastructure investments. If BPA is to pre-pay its long term debt to the U.S. Treasury as proposed under this plan, how much would that lower total revenues to the Treasury from BPA?

Answer. As BPA issues new bonds to the Treasury, it does so at prevailing market interest rates. By law the rate on BPA's Federal bonded debt is equivalent to the Government Agency Rate, a market interest rate based on Government corporations' debt. This rate is typically slightly higher than the Treasury rate to reflect the risk

associated with Government corporations. Because these rates are indexed to market rates, BPA's Federal debt will inevitably be above or below prevailing market rates as the market rates move up or down over time. BPA also has outstanding appropriated debt obligations. The current average rate on the outstanding appropriations is higher than the prevailing market interest rates. However, the Administration's proposal does not anticipate paying appropriations early, only bonded debt.

The net secondary proposal anticipates that in years when net secondary power revenues are above $500 million, BPA would pay bonded Treasury debt in excess of that scheduled to be paid. BPA has not done any analysis of Treasury impacts of this proposal.

Question 6. Secretary Bodman, since the Department of Energy first announced its plans to reorganize by merging the Environment, Safety, and Health and Security and Safety Performance Assurance Offices, I have expressed concern and disappointment over the implementation of this new Office of Health, Safety and Security. I remain unconvinced that dismantling the office chiefly responsible for overseeing worker safety and health will actually strengthen worker health and safety. In the past, I worked with former Assistant Secretary John Shaw to ensure that the Former Worker Medical Surveillance Program continue to be funded, providing the medical screening services to the thousands of workers potentially exposed to hazardous materials during their employment at Hanford. How will the new HSS Office ensure the Former Worker Medical Surveillance Program remains in place? What are your plans to improve and expand occupational safety programs under HSS?

Answer. Senator Cantwell, the Department of Energy did not abolish any office or function when I created the new Office of Health, Safety and Security (HSS). In fact, during the first five months after its creation, HSS has redoubled efforts regarding worker health and safety. Additionally, HSS has in place a performance-based independent oversight program that assesses contractor self-assessments, line management evaluations, and worker performance. HSS identifies weaknesses in our worker safety and health programs and their implementation through program reviews and performance testing. The effectiveness and value of our assessments enables us to take timely corrective action to address any weakness.

Specifically, with respect to the Former Worker Medical Surveillance Program (FWP), we are ensuring that the program continues to provide medical screening to former federal and contractor employees from all DOE sites and that workers are screened in close proximity to their residences through regional programs and a supplemental program to serve workers who no longer live near the sites at which they worked. The restructuring of the DOE environment, safety, and health functions at DOE Headquarters did not result in any changes to operations of the FWP. More than 46,000 individuals have been screened to date, and DOE intends to screen over 10,000 individuals in FY 2007. In the past six months, screening has been extended to workers from multiple small DOE sites not previously served. Individuals from all sites with abnormal findings are referred for medical follow-up and/or to the Department of Labor's (DOL) program under the Energy Employees Occupational Illness Compensation Program Act (EEOICPA).

In FY 2007, the Department has increased interactions with DOL and the National Institute for Occupational Safety and Health (NIOSH) to ensure work and exposure history information and test results obtained during medical screening through the FWP can be effectively used by these agencies, upon request by the claimant, in adjudicating claims filed under EEOICPA. The Department will host a meeting in Oak Ridge in May 2007 during which principal investigators from the FWP projects, representatives from DOL and NIOSH, and records contacts from DOE sites will address FWP and EEOICPA-related priorities and ways participating organizations can best work together to support the current and former worker community.

With the promulgation of 10 CFR 851, Worker Safety and Health Program, HSS has undertaken an extensive effort to assist DOE federal and contractor staff in implementing this worker safety and health rule. HSS has partnered with the Headquarters Program Offices, the Office of General Counsel, and the HSS Office of Enforcement to develop implementation guidance and tools to assist the DOE complex with coming into compliance with 10 CFR 851. Through the use of workshops, tele-video, and conference calls, we have addressed and resolved hundreds of issues and used this information in the development of the Implementation Guide for 10 CFR 851. In addition to the Worker Safety and Health Rule we have identified the need for developing policy for the use of Nanoscale materials within the DOE. We have formed a working group that includes the Office of Science and the National Nuclear Security Administration which will leverage the knowledge and expertise of those organizations to assure the proper Nanoscale policy is developed. We are in

the final stages of amending 10 CFR 835, Occupational Radiation Protection, to improve our assessment of worker's occupational radiation exposures taking into account new international standards. The Chronic Beryllium Disease Prevention Program (10 CFR 850) will be amended to reflect the lessons learned during the past seven years that this rule has been in place. In all cases we are better poised to capitalize on the synergy of the various functions in the new HSS organization and relationships with the DOE field organizations to develop policy and guidance which will improve the safety of the entire DOE workforce.

Our long-term plans call for HSS to work with line managers to provide greater assurance that management systems adequately identify and analyze hazards and provide appropriate controls to protect the health and safety of workers. In doing so, we will continue to use the Integrated Safety Management framework, which has been in place for more than ten years and has positively contributed to DOE worker safety. As part of this effort, HSS will coordinate its efforts to examine the specific types of problems that are being experienced and recommend specific solutions (e.g., new methods, tools, guides). A major focus will be on determining the systemic causes of deficient performance in order to take corrective actions that address root causes and contributing factors. For example, HSS is supporting the Human Performance Initiative concept. This Initiative is a systematic process of discovering and analyzing important human performance gaps, planning for future improvements in human performance, designing and developing cost-effective and justifiable interventions to close performance gaps, implementing the interventions, and evaluating the results. Its purpose is to minimize the frequency and severity of adverse events that impact the safety and health of workers, the public, and the environments.

Question 7a. Secretary Bodman, worker's compensation is a basic benefit to injured workers that should not be reduced. I've recently spoken to some Hanford workers about a recent Request for Proposal (RFP) for an extension of the Flour Hanford Contract with DOE. There seems to be some confusion with regard to a worker's compensation clause and whether worker's compensation is considered an allowable cost to the contractor.

What is the Department's general policy regarding workers' compensation?

Answer. Federal Acquisition Regulation 28.307-2 mandates contractor compliance with applicable Federal and State workers' compensation laws. Pursuant to this regulation, the Department reimburses its contractors' costs of providing workers' compensation coverage.

DOE policy regarding reimbursement of worker's compensation programs, as set forth in DOE Order 350.1, Chg. 1, Contractor Human Resource Management Programs, provides that DOE also may reimburse contractors for the costs of supplemental benefits (such as paid time off) to the extent that total benefit payments from all sources do not exceed 100 percent of an employee's net pay. In addition, any supplemental benefit program must be part of a total employee benefit program that meets the tests of allowability established by FAR.31.205-6.

During discussions last summer and fall to extend the Fluor Hanford, Inc. contract (as well as the recently extended contract with CH2M Hill Hanford), the parties agreed that DOE would only reimburse the contractors for the amount of workers' compensation required by Washington State law unless such compensation is otherwise required by an existing Hanford Site labor agreement.

Question 7b. Does the agency intend to restructure this policy in the near future? Please explain.

Answer. DOE does not plan to change its policy for reimbursement of site and facility management contractor workers' compensation.

Question 8. Secretary Bodman, as you may know, the HAMMER program is an important worker safety training tool for Hanford workers. You have stated that worker safety is a priority of your Department. Yet in FY 2008, funding for the HAMMER worker safety program has been gutted for the second year in row. Can you explain how cutting funding for the HAMMER program entirely is consistent with your Department's policy objectives? How is your Department ensuring that workers at Hanford are properly trained and certified?

Answer. The Department's policy has not changed. DOE remains committed to ensuring that our workers at Hanford are properly trained and certified. Work cannot be done without appropriate training and each project includes funds to meet this requirement. Under our performance-based contacts, it is up to each of the contractors to decide how best and where to obtain the training as long as it is cost-effective and meets site-wide requirements. HAMMER has the capability to provide this service for the Hanford contractor workforce, but the Department's budget request supports the training essential for cleanup without specifying precisely how or where.

Question 9. Secretary Bodman, I remain concerned about the decline in funding for Hanford Tank Farm activities, which has dropped from $364 million in 2005 and $327 million in 2006 to $273 million in FY 2008. In 2001 the Nuclear Regulatory Commission reported that Hanford's High Level Waste tanks "represent immediate concerns" particularly because of aging and deterioration. The emphasis on the Waste Processing Plant, the Nuclear Regulatory Commission pointed out, should not overshadow the waste tanks because of "considerable environmental and public risk posed by continued operation of the tanks with their associated leakage and potential for collapse and explosion." What is the extent of funding for the Department's high-level waste tank maintenance and surveillance activities, such as flammable gas monitoring, structural integrity ascertainment, corrosion controls, and radiation controls? What is the status of addressing potentially serious corrosion in the steel liner of one of the Hanford double-shell tanks?

Answer. The funding for the Department's tank maintenance and surveillance activities, such as flammable gas monitoring, structural integrity ascertainment, corrosion controls, radiation controls and other base operations activities for the tank farms has not declined during the period identified. The Department's budget in FY 2007 of $274 million is approximately the same as its FY 2008 budget request of $273 million.

The Department performs regular video and ultrasonic testing and although no conclusive report has been developed, corrosion does not appear to impact tank integrity.

Question 10. Secretary Bodman, you have said that pumping waste out of the single shell tanks has been discontinued because all pumpable waste has been pumped and that is left to pump is sludge. Your Department has confirmed that of the 67 single-shell tanks have leaked waste or are believed to have leaked. According to your FY 2008 budget request, these leaks have caused an additional 1 million gallons of liquid waste to seep in to the soil. Can you confirm whether the leaking from the 67 single-shell tanks has abated since pumping all of pumpable waste has been pumped was completed? Can you confirm that there is no risk of the remaining sludge leaking from the 67 single-shell tanks? Can you confirm that the waste in the double shell tanks, some of which are past their useful life, are not and will not leak?

Answer. On March 2004, the Department declared all pumpable liquids were removed from all single shell tanks (SSTs), limiting any risk for leakage. The Department continues to empty SSTs. To date, the Department has completed or essentially completed waste retrieval from six SSTs and other SST retrieval activities are underway. The Department has not detected any signs of SST leakage during those retrievals.

For the Department's RCRA-compliant double-shell tanks (DSTs), systems are in place in the annulus between the two tank shells to detect any leakage. No waste leakage has been detected. While there are no absolute assurances regarding long-term DST integrity, the Department's ongoing maintenance and monitoring activities effectively mitigate DST integrity-related risks.

GLOBAL NUCLEAR ENEMY PARTNERSHIP

Question 11. Secretary Bodman, the Department is proposing to spend $395 million in FY 2008, nearly half of all funds dedicated for nuclear energy R&D, on spent reactor fuel reprocessing. According to the GNEP Strategic Plan, DOE seeks to establish a large-scale nuclear "recycling center" in the United States that would reprocess spent reactor fuel from domestic and international sources so as to reduce nuclear waste volumes and ultimately destroy stocks of weapons usable materials. According to the Department's Energy Information Agency, potential nuclear growth is the greatest in the Far East and India. Based on the GNEP strategic Plan and projected international nuclear power growth, please estimate how much spent power reactor fuel, and over what period of time, would be sent to the United States for reprocessing?

Answer. At this time, no decision has been made regarding whether or not the U.S. would reprocess spent fuel from sources other than domestic utilities. It is anticipated that the initial U.S. capacity to recycle SNF would be approximately the amount generated by the U.S. commercial power reactors.

Question 12. Secretary Bodman, DOE officials at the sites and the Hanford Advisory Board (HAB) have indicated that the budget request is probably not adequate to meet Tri-Party Agreement compliance milestones. DOE is obligated to submit an adequate compliance budget to the Office of Management and Budget (OMB), so if this budget is not in compliance, that means it was cut by OMB. An acknowledgement by DOE that the budget is not adequate for compliance builds the case for

Congress to add money, which has been the practice for the past few years. Is the Department's budget request for Hanford cleanup adequate to ensure compliance with all Tri-Party Agreement milestones—both in FY 2008 and beyond?

Answer. The Hanford site has experienced significant technical, management, and regulatory challenges with such projects as the K-Basins, Waste Treatment Plant, and Plutonium Finishing Plant. The Department anticipates that these and other challenges may affect its ability to meet some Tri-Party Agreement milestones in 2008 and beyond. DOE will continue to evaluate project management and, where necessary, may seek to use flexibility in the Tri-Party Agreement framework to negotiate new milestone dates.

Question 13. Secretary Bodman, supplemental technologies are needed to address low-activity tank waste at Hanford to allow the Waste Treatment Plant to meet its missions. Bulk vitrification is being demonstrated, but technology problems have developed and DOE has stopped funding the demonstration. However, the need for supplemental technologies is still compelling, and if bulk vitrification is not the answer, perhaps other supplemental technologies, like steam reforming, should be funded. The FY-2008 request appears to include no funding for the demonstration of bulk vitrification to treat low-activity waste at Hanford. Does the Department plan to fund the demonstration and testing of promising alternative technologies, like steam reforming, to reduce the amount of waste that has to be treated in the Waste Treatment Plant?

Answer. An independent external review panel of subject matter experts reviewed the Demonstration Bulk Vitrification System (DBVS) Project last summer. The DBVS Project team is currently addressing issues raised by that panel, none of which were fatal to the project. The project team is also preparing DBVS for a DOE Order 413.3-A Critical Decision (CD)-2 evaluation, which, if successful, will establish a project baseline. A CD-2 baseline is prerequisite to the Department requesting additional DBVS funding.

The Department is also funding steam reforming tests, primarily in support of the Idaho sodium-bearing waste project. The steam reforming test activities include creating a mineralized waste form, which is the type of waste form that would be necessary for Hanford low activity waste (LAW). Other alternative technologies have been evaluated by the Department both to determine whether more cost-effective technologies are available without diminishing safety and also to provide treatment diversity for the various compositions of tank waste. The Department's decision process regarding which supplemental LAW technology will be used to complete the LAW mission (for example, bulk vitrification, steam reforming, or a second WTP LAW facility) will be made in accordance with the National Environmental Policy Act (NEPA) process and in accordance with the Tri Party Agreement. A Tank Closure and Waste Management Environmental Impact Statement is currently being prepared that addresses supplemental LAW treatment and other Hanford waste treatment and closure-related matters.

Question 14. Secretary Bodman, the Hanford Waste Treatment Plant is currently estimated to start up in 2019 and cost in excess of 12 billion dollars. There are concerns that this cost estimate is incomplete and does not include all facilities to treat Hanford's high-level radioactive tank wastes. For instance, I understand that the Hanford Waste Treatment Plant is being designed so that it will only accommodate 40 percent of the Hanford tank wastes, while the remaining 60 percent are expected to be treated with a supplemental technology, known as bulk vitrification. Given these circumstances, does the Energy Department's current estimate include treatment of the residual 60 percent of tank wastes? If so, how many bulk vitrification boxes are expected to be generated and what are the life-cycle costs for this project?

Answer. The Waste Treatment Plant (WTP) is designed to pretreat and vitrify 100% of the high-activity waste. The WTP is planned to vitrify about 50% of the low activity waste (LAW). In addition, the Department is evaluating alternative technologies to treat the remaining LAW fraction of the tank wastes in order to better align the LAW treatment processes with the waste characteristics. If, as a result of the ongoing baseline reviews and National Environmental Policy Act process, bulk vitrification is selected to treat the LAW that will not be treated in the WTP LAW facility, the Department estimates that approximately 4,000 boxes of LAW bulk vitrification glass would be generated.

The Department's estimates for the Office of River Protection include treatment of all tank wastes. Life-cycle cost estimates that are specific to the deployment of bulk vitrification at an operational scale will be generated as part of the Critical Decision (CD-2) process (formal Departmental approval process of a cost and schedule performance baseline) if that technology is ultimately selected for deployment.

Question 15. Secretary Bodman, the Energy & Water Appropriations Subcommittees have added money the last two years for Hanford groundwater, specifically for

technologies to mitigate the migration of radioactive contaminants towards the River. This is recognized as perhaps the "single greatest" environmental threat at Hanford, yet DOE's request apparently fails to provide funding for this technology development. The central environmental threat at Hanford is seepage of radioactive contaminants through the groundwater into the Columbia River. Funding was added the past two years by congressional committees to address such contaminant migration. What does your budget request do to continue, and accelerate, efforts to fund new technologies to mitigate such groundwater contamination at Hanford?

Answer. The Department is requesting a significant increase ($30 million, or a nearly 39 percent increase) in these activities in its request for the Hanford site. In addition, movement of radioactive contaminants into the groundwater and migration of contaminated groundwater to the Columbia River are the highest priorities for the Technology Development and Deployment Program (TDD). In FY 2006, a $10 million increase directed the Department to analyze contaminant migration to the Columbia River and to introduce new technology approaches to solve contamination issues. Subsequently, nine projects have been selected which are designed to remediate chromium, strontium-90, uranium, and carbon tetrachloride plumes at the Hanford site. The projects are designed to assess the viability of alternative treatment technologies that have the potential for performing better than the baseline technology currently being utilized. Both FY 2007 and FY 2008 TDD Program funding will be used to test and deploy the new technologies and approaches developed and assessed in FY2006 and FY2007 to mitigate or reduce contaminate movement toward the Columbia River. Additionally, Hanford will be increasing focus on the groundwater remediation systems to address contaminated plumes along the Columbia River, as well as in the Central Plateau, utilizing the results of the TDD program.

Question 16. Secretary Bodman, at today's hearing, I asked whether you would recommend the President sign a 15% Renewable Portfolio Standard bill send to his desk by Congress. You replied that you would not recommend the President sign such a bill based on your belief that RPS statues should be enacted by the states, not by federal law. Could you please further explain your reasoning? Do you think it is helpful to have several dozen different state RPS laws, with differing regulations, in order to achieve our shared goal of increasing renewable energy production? Would a national interconnection standard for renewable energy units to connect to the grid be a positive development?

Answer. The Administration has supported the development of State Renewable Portfolio Standards because power generation options and renewable resources vary widely from state to state, because states hold different views of the types of resources that they would like to support, and because retail electricity sales are regulated largely at the state level.

With 21 states moving forward with renewable portfolio standards, covering over 80% of the population, we have not seen analysis that indicates the benefits or utility of replacing existing State standards and regulatory structures with new and undefined National regulations. Supporting State efforts to meet their renewable goals, especially through utilization of EPACT authorities for transmission line development is our preferred approach.

Regarding interconnection standards for renewable energy, the Department is aware that a lack of standards for interconnection, as well as for trading of renewable energy credits, presents barriers to renewable power project development. The Department supports efforts to address these barriers.

Question 17. Secretary Bodman, at today's hearing, I asked whether you would recommend the President sign a bill that extended tax incentives for renewable energy and fuels production. You replied that you would not recommend the President sign such a bill. Could you further explain your reasoning? Do you think Section 45 production tax credits have had any effect on helping bring new renewable energy production online versus what it would have been without their existence? Are there any clean energy tax incentives you would support, and if yes please name them.

Answer. At the time of the Hearing, I indicated that we do not have a categorical response in the affirmative or negative for each of the many tax incentives that were signed into law by the President in the Energy Policy Act, some of which have, of course, been subsequently extended.

Moreover, the probability of Congress and the Administration agreeing to changes in the characteristics of existing tax policy, such as duration, eligibility period, transference and the like, requires, as suggested, some detailed cost-benefit analyses balancing the desired objectives of such policies with their respective budgetary impacts.

In that regard, we have begun inquiries with the Department of the Treasury (which has jurisdiction on these issues), to better understand and analyze actual growth and pricing impacts and cost-benefits of any potential changes to the characteristics of such tax policy, such as duration, eligibility, transferable value, etc.

The context of my earlier response was specific to the question on renewable energy, and ethanol, in particular. Of course, solar, geothermal, biomass, and wind technologies all benefit from tax credits listed under the Energy Policy Act of 2005, such as Section 45 Production Tax Credit; Section 48A Investment Tax Credit, Section 25C homeowners energy efficiency tax-credit; Section 30B alt fuel/hybrid vehicles tax credit; and Section 40A biodiesel tax credit.

Question 18. Secretary Bodman, please provide me with a history of the hydropower research goals, specifically I'd like to better understand the length of the program, how many taxpayer dollars were invested in it, and what results it achieved.

Answer. The Department's Hydropower Program was established in 1977. In the 1970s, the Hydropower Program focused on small hydropower technology assessment and strategic planning. In the 1980's, activities expanded substantially into a Small Hydropower Loan Program, plus resource assessment and analysis of environmental, economic, and policy issues facing new hydropower development. After several years of zero funding (fiscal years 1988-1990), the Hydropower Program reformed with a focus on new technology development to improve the environmental performance of hydropower projects. From 1994 to the present, the Hydropower Program has been focused largely on Advanced Turbine research, but it did expand further into new research topics like integration of hydropower with wind energy. The total funding since inception was approximately $128 million ($49 million of that was in fiscal years 1979 and 1980 when the Small Hydro Loan Program was operating).

Under the Small Hydro Loan Program (1978-1985), 20 new projects were developed with a total installed capacity of 133 megawatts in 18 states. More than two dozen guidance manuals, resource assessments, and technical analyses were produced in that early phase of the program, all related to small-scale hydropower development.

Since the Hydropower Program was restarted in 1990, the major accomplishments and technology transfers were:

- Conceptual designs for four types of advanced hydropower turbines, of which three are being used by industry today.
- Completed laboratory scale prototype testing of the new design fish-friendly Alden turbine. This design was made available to industry to be considered for a full scale demonstration project.
- Completed two years of full-scale testing of aerating Francis turbines at the Osage Project in Missouri. Results of these tests were made available to industry for consideration in addressing water quality issues at other locations.
- Completed one year of full-scale testing of a second-generation Minimum Gap Runner turbine at Wanapum Dam in Washington, with Grant County Public Utility District (PUD) and Voith Siemens. This turbine design is now available to industry and being considered for deployment at other hydropower sites.
- Developed new biological design criteria and new methods to measure environmental performance, applicable to new turbines.
- Completed a full assessment of the undeveloped hydropower resources in the United States, providing industry with the necessary tools to evaluate development of these hydropower resources.
- Produced numerous other research reports on subjects including mitigation effectiveness of fish passage, dissolved oxygen, and instream flow requirements.
- An advanced fish-friendly hydropower turbine resulting from the Hydropower Program's advanced turbine research was installed at the Wanapum Dam in Washington (Grant County PUD). Testing of this turbine was cost shared between the Department and Grant County.

Question 19. Secretary Bodman, there is growing worldwide interest in the utilization of ocean energy, particularly tidal and wave energy. Has the Department considered funding non-OTEC ocean energy R&D? If they have, what conclusions has the Department reached about its potential and a possible federal role?

Answer. The Department is observing the growth of interest, activity, and investment in wave and tidal technologies. We recognize that several states have promising opportunities for harnessing these forms of ocean and tidal energy, and thus we are monitoring domestic and worldwide progress in ocean energy technologies in collaboration with the Electric Power Research Institute and the International Energy Agency. Some countries with higher resource potential than the United States, relative to their overall energy needs, are active in ocean and tidal energy R&D.

Ocean, wave, and current technologies are still in their infancy, with a small number of demonstration systems operating worldwide. The Department will continue to consider emerging technologies like these in evaluating its research, development and deployment programs.

The Department is also supporting a wave energy technology R&D project via the Small Business Innovation Research Program. The U.S Navy also supports ocean energy research. In addition there may be opportunities for a Federal agency to satisfy the green power purchase requirements of the Federal Government mandated by the Energy Policy Act of 2005.

Question 25. Secretary Bodman, could you please provide EIA's analysis of how the President envisions reaching his State of the Union goal of production [of] 35 billion gallons of biofuels by 2017?

Answer. The Energy Information Administration (EIA) has not been asked to prepare an analysis of the President's Alternative Fuel Standard proposal. Any such analysis would be sensitive to program details, such as the list of fuels eligible for the program and the trigger levels at which the "safety valve" mechanisms that are included in the program would come into play. The analysis would also be sensitive to assumptions made regarding the availability of imports of eligible fuels, future yield assumptions for corn and other ethanol feedstocks, and the rate of progress in reducing the costs of emerging biofuels technologies, such as the production of ethanol from cellulosic biomass.

Question 26. Secretary Bodman, how many flex fuel vehicles would have to be on the road in 2017 in order to consume 35 billion gallons of biofuels?

Answer. Theoretically, if Flex Fuel Vehicles (FFVs) refueled 100 percent of the time with E85, assuming convenient, ready-access and wide availability—and never used conventional gasoline—approximately 24 million FFVs (approximately four times the number currently in use) would need to be on the road by 2017 to achieve the 35 billion gallon goal. Of course this is not a likely scenario, but it provides a solid quantitative baseline for all variables, such as consumer awareness of their vehicles flexible fuel capabilities, relative fuel prices, ease of access to E-85 dispensers, convenient station locations and relative vehicle performance. If, hypothetically, FFV owners chose E85 twenty-five percent of the time, approximately 96 million FFVs could be needed. To make such choices convenient to consumers, we estimate that E85 would need to be available between, at least, one fourth to one half of all gasoline retail outlets. In any scenario, FFV growth is essential to achieving the President's goal of reducing gasoline consumption by twenty percent in ten years.

Question 27. Secretary Bodman, the Office of Energy Efficiency and Renewable Energy received a huge $300 million increase as part of the FY 2007 continuing resolution. Could you please describe in detail, by program, how the Department plans to spend these monies and what results you have to achieve with these onetime funds.

Answer. In accordance with the provisions of H.J. Res. 20, the Department will submit to the Congress a plan for how the Office of Energy Efficiency and Renewable Energy plans to allocate the $300 million increase within 30 days of enactment.

Question 29. Secretary Bodman, please describe any advances in vehicle technologies that have resulted from DOE R&D and have been passed on to industry since the end of the Partnership for a New Generation of Vehicles. Do any of these technology advances appear in cars available to consumers today?

Answer. Partnership for a New Generation of Vehicles (PNGV) transitioned to the FreedomCAR and Fuel Partnership beginning in 2002. The automotive industry partner, the U.S. Council for Automotive Research (whose members are General Motors, Ford and DaimlerChrysler) continued as a participant and five energy companies joined. In terms of successful research efforts, the partners make their own decisions on commercialization independently. The decision for these technologies to be integrated in the vehicles they manufacture is entirely up to the automobile industry participants. However, in the partnership agreement with DOE, U.S manufacturers have committed to commercialize new technologies as soon as a business case can be made.

Several Department of Energy cost-shared technologies have been introduced by partners into vehicles and fuels, such as:

- Cummins (a diesel engine manufacturer) developed a light-duty diesel engine that will be manufactured for 2009 model DaimlerChrysler light-trucks and SUVs.
- Research into heavy hybrid technology with Allison Transmission has accelerated the development of the dual mode hybrid system that General Motors will offer for sale in its 2008 Chevy Tahoe full size hybrid sport utility vehicle.

- DaimlerChrysler and BMW will offer variations of the same technology in several vehicle applications, such as the 2008 Dodge Durango.
- DOE investigated the different effects of sulfur levels on emission control devices. The data generated by that research allowed industry and government to reach consensus on the 15 parts per million standard for low sulfur diesel fuel. This fuel is now available across the country and is enabling the introduction of clean and efficient light-duty diesel vehicles.
- Emission control technologies developed with Cummins appear on the 2007 Dodge Ram truck that meets the EPA 2010 emission standards three years early.
- Several modeling codes developed by the national labs as part of the Vehicle Technologies research program to simulate combustion and emission controls are now being used by industry to design and optimize their engine systems.
- Advanced casting technologies for magnesium and aluminum that were. developed under FreedomCAR are now used in production passenger vehicles. The aluminum casting technologies are used in the production of other consumer products.

Additional items can be found at: http://www1.eere.energy.gov/vehiclesandfuels/resources/fcvt__success__stories.html

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR SANDERS

WEATHERIZATION

Question 1. I can't articulate to you the depth of my concerns about this Administration's attempts to cut funding for weatherization. I fought for weatherization funds for years when I was a member of the other body and I will continue as a member of this body.

What other programs administered by the Department of Energy are cutting energy use and energy bills for low-wage workers and fixed-income retirees this year? Since we know the answer is NONE, I wonder where the fairness is since low-income taxpayers' payroll taxes are being used to provide tax incentives to upper-income families to buy hybrid SUV's.

In response to a question from Sen. Menendez, you indicated that weatherization does not provide enough of a return on investment for it to be a priority—and yet you have no information, according to your budget, about the consumer savings associated with the program. When do you expect to have such information? And, why would you cut the program without having that information?

Answer. The Department's budget request presents estimated per-household consumer savings on page 429 of Energy Supply and Conservation (Volume 3). Those savings, $274, are estimated first-year cost savings per-household, using historical results from 1993-2002, for homes weatherized in 2006, based on energy prices in the 2005 EIA Annual Energy Outlook. As you are aware, energy costs vary over time, and we regularly update our estimated consumer savings to reflect changing energy prices.

Our most recently published fact-sheet, available on our web-site, updates the per-household first-year cost savings estimate to $358 based on energy prices in the 2006 EIA Annual Energy Outlook.

In addition, the expected benefits of each EERE program are shown in our Congressional justification materials. A summary is presented on page 31 and 32 of Energy Supply and Conservation (Volume 3). The table shows the Weatherization and Intergovernmental Program has the lowest or near lowest expected benefits in all three benefit categories (consumer expenditure savings, carbon emissions reductions, and avoided oil imports). Details of our modeling efforts that produce these results will be available online by March 31, 2007 at http://www1.eere.energy.gov/ba/pba/gpra.html.

Weatherization is the largest-funded program in EERE, at the expense of other research and development (R&D) programs. In order to address this country's energy challenges with the urgency it deserves, we have chosen to prioritize investments in efficiency R&D that have multiplicative returns such as improvements to appliances and the building envelope that affect the whole American population rather than additive returns not associated with technological R&D that target a single segment of the population, albeit an important one.

The Department administers and invests in programs to continuously yield technological products, services, appliances, building and vehicles that improve efficiency each and every year, and thus cut energy use and bills for all Americans.

NUCLEAR POWER

Question 3a. Nuclear Power 2010, a government-industry cost-share program to license new reactors, has received more than $186 million since FY 2001. President Bush has said that Nuclear Power 2010 will be a $1.1 billion program. On what specifically will the $1.1 billion be spent?

Answer. The $1.1 billion dollar estimate represents the total estimated costs for the two New Nuclear Plant Licensing Demonstration Projects of which the Federal government will cost share 50 percent. The estimate is the commitment to support the activities to see the 2 combined Construction and Operating License (COL) applications through to completion but there are additional aspects of the 2010 program not included in that estimate, such as three Early Site Permits, and the Standby Support Programs.

These two projects, cost shared with Dominion Energy and NuStart Energy Development LLC, support activities for industry to apply for and receive two COLs from the Nuclear Regulatory Commission (NRC) and for reactor vendors to complete sufficient final designs on two Generation III+ reactors, the AP 1000 and the Economic Simplified Boiling Water Reactor (ESBWR) that will enable an industry decision by 2010 to build a new nuclear power plant. Activities include COL application preparation, support of the NRC review and approval of two applications, design engineering work in support of the COL applications, support of NRC design certification of the AP1000 and ESBWR, site-specific engineering for the COL reference sites, first-of-a-kind engineering for the two reactors, and final design.

Question 3b. The Department has granted $260 million to a consortium of utilities and manufacturing companies, called NuStart, for only one construction and operation license application. On what specifically have the Nuclear Power 2010 funds been spent? How much has been given to which companies to do what?

Answer. Since 2001, the Nuclear Power 2010 Program has implemented feasibility and suitability studies and is supporting three Early Site Permit Projects, two New Nuclear Plant Licensing Demonstration (or combined Construction and Operating License (COL) Demonstration) projects, the COL Guidance and Generic Issues Project, and the Standby Support Programs. The Nuclear Power 2010 program also supported a number of economic and infrastructure-related studies, which can be found on the Department's Nuclear Power 2010 public information website at http://nuclear.energy.govinp2010/neNP2010d.html.

One of the two New Nuclear Plant Licensing Demonstration Projects was awarded to NuStart Energy Development, LLC with an original project estimate of $260 million at the time of award selection in November 2004. The current NuStart project estimate is $322 million. Department cost-share funding provided to NuStart through FY 2006 is $77.4 million. This cost share has been divided between the three major companies participating in the project as follows: NuStart—$11.2 million, Westinghouse—$45.9 million and GE—$20.3 million.

Activities performed with these funds ($77.4 million) include project setup, management and administrative costs including subcontract establishment with Westinghouse and General Electric, site evaluations and selection, reactor technology bid specification development, preparation (including design) of two combined Construction and Operating License (COL) applications for the AP1000 and ESBWR, and licensing interaction with the Nuclear Regulatory Commission (NRC) on regulatory requirements and associated regulatory guidance related to the COL application.

Major future activities during the FY 2007 through FY 2011 include completion of the COL application process with the NRC, licensing interactions, and completion of engineering on the AP 1000 and ESBWR designs.

GLOBAL NUCLEAR ENERGY PARTNERSHIP

Question 4. At today's hearing, Mr. Bodman said that GNEP is going to be a multi-decade program. At what point does the Department intend to tell Congress how much the entire lifecycle cost of GNEP will be? Why is Department in the process of approving a full-scale reprocessing facility when the research is at the lab-bench scale, as Mr. Bodman said in the hearing today? Why is DOE in the process of approving a fast reactor when, according to the DOE's Generation IV documents the fast reactor is at the Technical Readiness level of "concept development" and not ready for full-scale construction, as proposed?

Answer. The Department is developing a Global Nuclear Partnership Program Management Plan (GNEP PMP) that outlines high-level programmatic milestones, cost schedules, and timelines for GNEP. In addition, DOE plans to further engage industry to provide additional input for consideration leading to an informed Secretarial decision by June 2008.

The Department is not in the process of approving a full-scale reprocessing facility, but rather exploring alternatives with stakeholders and industry. The Department is also engaging industry to determine the technology development needs that exist for the large-scale or full-scale deployment of nuclear fuel recycling centers and advanced recycling reactors.

The Generation IV fast reactor technology program differs from GNEP in that they are proposing to develop the "next-generation" of fast reactor technology for the 2040 timeframe. By 2025, GNEP would apply, the best available existing fast reactor technology similar to that currently used in France, Japan, and Russia.

RESPONSE OF SECRETARY BODMAN TO QUESTION FROM SENATOR CORKER

Question 1. Mr. Secretary, I would like to call your attention to solar technology originally developed and now being commercialized in my home state of Tennessee that appears to have fallen through the cracks in this budget request. The technology, developed by Oak Ridge National Laboratory, is called solar lighting. Solar lighting systems collect sunlight on the roof-top of buildings and pipe it through optical fibers to illuminate the inside buildings and save energy on light bills. This past year, Oak Ridge and its private industry partner commercializing the technology won an R&D 100 award as one of the top 100 research developments of 2006. Unfortunately, it is my understanding that the Administration's request has largely overlooked the funding line that supports this area of research, and I'm told that momentum may be lost in this exciting new solar field unless solar heating and lighting research is more adequately funded.

Would you please explain your rationale for this year's request concerning the solar energy R&D portfolio?

Answer. The hybrid solar lighting R&D being conducted by Oak Ridge National Laboratory is scheduled to undergo an in-depth technical review at the end of FY 2007. This review is meant to coincide with the completion of a market study and several improvements in the operation and performance of the technology.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR SESSIONS

NUCLEAR POWER 2010

Question 1. NP 2010 was authorized to provide a 50/50 cost share between the government and private industry regarding development of first-of-a-kind engineering for new nuclear reactors. In order for nuclear power companies to move forward to develop the next generation of reactors, they need to be certain that NP2010 program will be funded. What do you expect to accomplish with the $114 million for NP2010 in FY2008? Is NP2010 your highest priority in nuclear energy? Given our need for baseload power, should we not seek to develop more than 2 COL licenses nationwide?

Answer. The $114 million in FY 2008 for Nuclear Power 2010 (NP 2010) will support the submission of two combined Construction and Operating License (COL) applications and the initiation of the Nuclear Regulatory Commission (NRC) review of these applications including responses to NRC's Requests for Additional Information as well as the NRC review fees. In addition, the design certification review of the Economic Simplified Boiling Water Reactor (ESBWR) by the NRC will be funded through industry by the NP 2010 Program. The reactor vendors will continue their design engineering work including first-of-akind engineering on the two Generation III+ reactor designs, AP 1000 and ESBWR.

The NP 2010 Program with its near-term goal of an industry decision to build a new nuclear power plant is a very high priority for DOE. Although NP 2010 is funding the development, submission, and NRC review of two COL applications for approval, 15 utilities have notified NRC that they intend to file up to 21 COL applications between 2007 and 2009. Up to 32 new units are planned by these utilities, of which 15 plants are planned by utilities involved in NP 2010.

The submission of the two NP 2010 funded COL applications will provide critical information that benefits all subsequent COL applications.

The COL applications being developed outside the NP 2010 program demonstrate that the baseload power needs can be met without expanding the program beyond its original scope.

Question 2. I want to commend the Department for their partnership with the metalcasting industry on the EnergySMART program, but I am concerned that over the last two years funding for the EnergySMART program has been diverted to other projects. My understanding is that this underfunding has delayed progress. What is the DOE doing to ensure proper funding and adequate progress of the EnergySMART program?

Answer. The Industrial Technologies Program (ITP) has historically worked with the eight most energy-intensive manufacturing industries to research, develop, and implement advanced technologies that save energy, cut costs, and reduce emissions. While these activities have contributed to reducing overall industrial energy consumption, the industrial landscape is changing rapidly. ITP is focusing its technology research to be widely applicable to the U.S. industrial base. ITP is working to leverage developments through Original Equipment Manufacturers (OEMs) and end-users. ITP has identified four critical technology areas (Reactions & Separations, High Temperature Processes, Energy Conversion Systems, and Fabrication & Infrastructure) for research which includes all the technology areas and interests of the traditional energy intensive industries (including metal casting) and is applicable to a much broader array of industry members. These technology areas were identified using ITP industrial analyses, industrial stakeholder roadmaps and other feedback. In FY 2007, ITP is issuing two solicitations based on these technology areas. All U.S. industries, which includes metal casting, are encouraged and expected to participate.

The Energy-Saving Melting and Revert Reduction Technology (E-SMARRT) portfolio fits within two of the new technology areas ("High Temperature Processing" and "Fabrication and Infrastructure") specifically address casting technologies for melting, high-temperature processing, fabrication, and forming of ferrous and nonferrous metals. This research has the capability to significantly improve productivity and competitiveness of the domestic automobile industry. It contributes to savings in casting energy use.

ITP recognizes the value of E-SMARRT and plans, to provide appropriate funding when projects are meeting their milestones and ITP objectives. ITP's strategy is to direct its investments and resources to those projects that can provide the largest impact for reaching its goals.

Question 3. The US manufacturing industry has considerable challenges with global competitiveness. Nanotechnology has been promising for several years to change the entire US industrial base, changing products and manufacturing processes. These new products and processes are touted to make manufacturing more energy efficient resulting in lower carbon dioxide (GHG) emissions. How is the Department accelerating nanotechnology into the industrial marketplace?

Answer. As a partner in the National Nanotechnology Initiative (NNI), the Department of Energy (DOE) fully supports NNI's four goals, one of which is "Facilitate transfer of new technologies into products for economic growth, jobs, and other public benefit." To meet this goal the NNI has chartered a member of outreach groups in which DOE participants, including the Nanotechnology Innovation and Liaison with Industry Working Group. This group interacts with various industrial sectors, including the chemicals and electronics industries, to promote nanotechnology development and use.

Specifically within DOE, the Office of Science's Basic Energy Sciences program is responsible for development and support of five Nanoscale Science Research Centers, which make unique capabilities and world-leading expertise available to industrial users for both pre-competitive and proprietary work.

In addition, DOE has sponsored meetings with the NanoBusiness Alliance, With representatives of other industry groups like the Semiconductor Industry Association and the Semiconductor Research Corporation, with community business groups like the Arlington, Texas Chamber of Commerce, and with representatives from specific companies like Motorola.

Support has also been provided for industrial activities through the Department's Office of Energy Efficiency and Renewable Energy, particularly for the chemicals industry, including support for the Chemical Industry Vision2020 workshop on nanomaterials by design.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR DEMINT

Question 1. In the FY 2007 Department of Energy (DOE) budget, the Site Completion section for the Savannah River Site (SRS), said that "SRS is a site with an enduring mission and is not a closure site." This language is missing from the FY08 budget documents. Does DOE still believe SRS is a national priority with resources that exist nowhere else in the United States?

Answer. The SRS mission and status has not changed.

Question 2. Is it DOE's intention to maintain SRS and its enduring missions?

Answer. Yes, the Department continues to believe that SRS is a site with an enduring mission.

Question 3. While I appreciate DOE adding an additional $121 Million to the critical Defense Cleanup work at Savannah River Site, I am concerned that DOE cut

over $235 Million from the 2012 accelerated completions. What programs will be affected by this reduction?

Answer. There are no programmatic impacts related to this transfer of funding. The FY 2008 budget does not represent a decline in 2012 Completion Projects, but simply a shift in funding from the 2012 Completion Projects at Savannah River to the 2035 Completion Projects account. This shift is due to the transfer of the F-Area and H-Area activities to the 2035 Completion Projects account. These activities include the operation of H-Canyon and HB-Line to support the processing of legacy nuclear materials and aluminum-clad spent nuclear fuel for disposition consistent with the site cleanup strategy, and continue support for efforts to blend highly enriched uranium solutions to low enriched uranium that will be packaged and shipped to the Tennessee Valley Authority. In addition, the Site will continue to monitor the F-Canyon Complex facilities in a minimum surveillance and maintenance condition. The only remaining activity in the 2012 account is the construction funding for the 3013 Container Surveillance and Storage Capability project.

Question 4. Secretary Bodman, do you believe this budget fully funds the current scope of cleanup activities at the SRS and maintains the current size of the workforce?

Answer. The proposed budget supports the risk-based cleanup priorities at the site. The focus of the program in FY 2008 is plutonium/uranium disposition and the reduction of the risk associated with long-term storage of radioactive liquid waste. Adjustments to the workforce will be necessary as some programs are completed and others ramp up. It is anticipated that the site's overall workforce will remain relatively stable in FY 2008.

Question 5. Secretary Bodman, if the budget is not adequate to fully fund the scope of work and maintain the size of the workforce at SRS, what is DOE's plan to meet the budget?

Answer. The proposed budget supports the risk-based cleanup priorities at the site. The focus of the program in FY 2008 is plutonium/uranium disposition and the reduction of the risk associated with long-term storage of radioactive liquid waste. Adjustments to the workforce will be necessary as some programs are completed and others ramp up. It is anticipated that the site's overall workforce will remain relatively stable in FY 2008.

Question 6. Secretary Bodman, with an understanding that there have already been setbacks with the Salt Waste Processing Facility (SWPF), are you willing to commit DOE's time and resources to ensure that the SWPF does not experience further delay?

Answer. The Department is committed to completing this critical project. Based on ongoing facility design, SWPF Project is in the process of formally establishing a performance baseline in accordance with DOE Order 413.3A that takes into account all delays and impacts encountered over the last two-year period. This baseline will establish the cost and schedule for the project and should be in place late summer or early fall. DOE will provide the oversight required to ensure that the baseline schedule is maintained.

Question 7. Secretary Bodman, will DOE be issuing a draft Request for Proposal (RFP) for the Savannah River Site Liquid Waste Management contract?

Answer. Yes, the Department is working on the draft RFP. We anticipate releasing it for public and industry comment during the second quarter Fiscal Year 2007.

Question 8. Secretary Bodman, when will the RFP come out?

Answer. The Department anticipates releasing the draft RFP for the Savannah River Site Liquid Waste contract for public and industry comment during the second quarter Fiscal Year 2007.

Question 9. Secretary Bodman, what is the schedule for bid deadlines and decisions to be made both for the Liquid Waste contract and the Management and Operations contract at SRS?

Answer. Upon release of the final request for proposals, bidders will have approximately 60 days to respond to the request for proposals. The Department will then diligently review the proposals received and award the contracts with the goal of doing so within the time period in the current SRS contract extension (June 2008).

Question 10. Secretary Bodman, we have over 2,000 canisters of Defense waste at SRS and a commitment was made to SC to remove that material. I understand DOE will submit its license to operate Yucca in 2008. Under your current timeline, when can South Carolinians expect to see some of these Defense waste canisters leave South Carolina?

Answer. The Department intends to submit a high quality license application to the NRC not later than June 30, 2008. Our current best achievable schedule for opening the repository and accepting waste is March 2017. This schedule, however, is based on appropriations consistent with optimum Project execution, issuance of

a Nuclear Regulatory Commission (NRC) Construction Authorization consistent with the three year period specified in the Nuclear Waste Policy Act, and the timely issuance by the NRC to DOE of a Receive and Possess License. This schedule is also dependent on the timely issuance of all necessary other authorizations and permits, the absence of litigation related delays and the enactment of legislation proposed by the Administration. In addition, the extent to which we could ship high-level waste from Savannah River to Yucca Mountain is dependent on the availability of a rail line to Yucca Mountain. Once the repository is opened, we believe that the vitrified waste from Savannah River would be an excellent candidate for early waste acceptance and disposal at the Yucca Mountain Repository.

Question 11. Secretary Bodman, what is your plan to dispose of the waste at the Savannah River Site (SRS) in the most environmentally safe and secure way possible if Yucca does not open?

Answer. The Department is currently vitrifying high-level waste and storing the glass canisters, a stable and safe waste form, on-site at SRS. The Department is also safely storing spent nuclear fuel on-site, until such time that it can be processed and prepared for disposal at Yucca Mountain. The Department currently projects Yucca Mountain availability in 2017.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR SMITH

Question 1. First, let me say that I appreciate the fact that the Administration is no longer pursuing legislation to make BPA's third-party financing arrangements count against BPA's statutory debt ceiling. However, the requirement in the budget proposal that BPA dedicate net secondary revenues in excess of $500 million annually is opposed by me and other members of the NW delegation.

Does the President's budget proposal include revenues from this proposal? If so, please provide those annual revenue numbers, beginning with fiscal year 2008.

Answer. Yes, the FY 2008 budget estimates assume incremental revenues associated with the net secondary revenue proposal. These estimates are embedded within the gross revenue and net outlays estimates for BPA for the fiscal years 2008 through 2012. The incremental revenue estimates are:. $91 million for FY 2008; $112 million for FY 2009; $107 million for FY 2010; $116 million for FY 2011, and $107 million for FY 2012, for a total of $533 million for the FY 2008 through FY 2012 period.

These estimates are based on expected values. Actual incremental revenues would depend on how the net secondary proposal is implemented in BPA's power rate structure. Actual net secondary revenues vary significantly from year to year due to many variables, including the volatility of secondary power market prices and the variability of annual stream flows.

Question 2a. What are the process and the schedule for the proposed dialogue with the region?

Answer. The dialogue on the secondary revenue proposal would be best conducted within the Pacific Northwest, and this would most likely yield an approach that would meet the basic goals of the budget proposal while positively addressing the needs and concerns of BPA's customers. This discussion is planned to take place concurrent with the discussions expected later this spring surrounding the rate structure and contracts that will implement the Long Term Regional Dialogue policy.

Question 2b. What Administration officials would be involved with these discussions?

Answer. I have asked BPA Administrator Wright to work with Northwest parties to convene this discussion. If the discussion does go forward and yields a recommended approach, as I hope it will, I would expect you and other members of the Northwest delegation will have an opportunity to provide input on that approach before it is acted upon.

Question 3a. There is recognition in the budget (p.385 of the Appendix) of contingencies that may arise for BPA, and there is discussion in BPA's press release about "access to any prepayments should BPA's fortunes wane . . .".

How does the Administration intend to address this need for access to capital under certain conditions, primarily bad water years?

Answer. The anticipated regional discussions will address a desire to balance the basic goals of the net secondary proposal with the ability of BPA to access any prepayments should its financial fortunes wane, such as in bad water years, and also mechanisms for assuring durability of any agreements around the implementation of this proposal, if and when such agreements are reached.

Question 3b. Would this require legislation?

Answer. The current proposal is intended to be administrative in nature and it is premature to speculate whether the use of some yet-to-be-determined implementation mechanism would require legislation.

Question 4. While I am a supporter of all renewables, I remain concerned that the Department is ignoring the growing interest in wave and tidal energy, particularly on the contiguous West Coast, Alaska, and Hawaii. These innovative technologies are renewable, non-emitting resources that can help meet our nation's growing demand for electricity. In Oregon, it would be possible to produce and transmit over two hundred megawatts of wave energy without any upgrades to the existing transmission system on the coast. Already a number of preliminary permits have been filed at the Federal Energy Regulatory Commission for wave energy facilities off the Oregon coast.

These facilities would be virtually invisible from shore, and could provide predictable generation that could be easily integrated with other electricity resources. In addition, according to a January 2005 report issued by the Electric Power Research Institute, "with proper siting, converting ocean wave energy to electricity is believed to be one of the most environmentally benign ways to generate electricity."

As with many emerging renewable technologies, wave and tidal energy are more costly than traditional generation using fossil fuels. Yet, for our environment, and our energy security, we must provide incentives that will encourage the development and commercialization of these resources. Can you please explain to me why the budget for renewable energy ignores these technologies again this year?

Answer. The Department is observing the growth of interest, activity, and investment in wave and tidal technologies. We recognize that several states have promising opportunities for harnessing these forms of ocean and tidal energy, and thus we are monitoring domestic and worldwide progress in ocean energy technologies in collaboration with the Electric Power Research Institute and the International Energy Agency. Some countries with higher resource potential than the United States, relative to their overall energy needs, are active in ocean and tidal energy R&D. Ocean, wave, and current technologies are still in their infancy, with a small number of demonstration systems operating worldwide. The Department will continue to consider emerging technologies like these in evaluating its research, development and deployment programs.

The Department is also supporting a wave energy technology R&D project via the Small Business Innovation Research Program. The U.S. Navy also supports ocean energy research. In addition there may be opportunities for Federal agency procurement in order to satisfy the green power purchase requirements mandated by the Energy Policy Act of 2005.

Question 5. For the remainder of this fiscal year, how does the Department intend to allocate funds to institutes that have received funding in the past years, such as the Geo-Heat Center at Oregon Institute of Technology?

Answer. With the enactment of the FY 2007 budget for the Department, we will be preparing and submitting a spending plan within 30 days. As we prepare that plan, we will carefully consider funding options for projects that have contributed in the past and have the potential to continue contributing to our research, development and deployment goals.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR SALAZAR

RENEWABLE ENERGY & ENERGY EFFICIENCY

Question 1. Secretary Bodman, you have been quite supportive of the National Renewable Energy Laboratory in Golden, Colorado, as well as Energy Efficiency and Renewable Energy programs in general. I recall your visit to NREL in July of 2006, when we both cut the ribbon the new Science and Technology Facility there. But when it comes to presenting budgets like this one, there is a lack of strong leadership by this administration for supporting EERE programs, and in particular for NREL, where this administration proposes a cut of $6 million dollars compared to last year's request. In inflation adjusted dollars, the request is actually a cut in spending compared to FY06. What happened between your visit to Colorado and now in Washington?

Answer. The Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE) provides 87% of the funding for the National Renewable Energy Laboratory (NREL). Approximately 4% is funded by DOE's Office of Science and 9% from other government sources and technology partnership agreements.

Recently, some media reports have caused alarm by inaccurately speculating on the potential for a decrease in NREL funding in fiscal year 2008. Unfortunately, these media reports have been based on budgetary numbers that were taken out

of context and do not tell the whole story of NREL funding. In fact, actual funding to NREL has historically been much higher than the published budgetary numbers referred to in the media reports. This is because, every fiscal year, the Department of Energy awards new research grants for specific projects above and beyond a lab's published budgetary numbers. Government budgeting guidelines take a conservative approach and permit publication of only the minimum amount of funding required to maintain known, ongoing operations—not the estimated value of new research grants.

For example in fiscal year 2006, the Government budgetary numbers showed NREL funding of $143 million from EERE. In that year, NREL actually received $183 million from EERE—$40 million above the original forecast. In addition, NREL received another $18.4 million from other DOE offices and other Federal Agencies. Overall in fiscal year 2006, total Federal funding to NREL was 40% more than shown in the Government budgetary numbers.

Question 2. This year's budget request shows a 5.2% increase in spending for EERE programs over FY 2006 spending levels, the first time in five years that the Bush administration has requested an increase in spending over its previous year's requested when adjusting for inflation. However, with the newest GDP deflators in this budget request, the total EERE FY08 request is only a 0.2% increase over FY06 total EERE, due to the 5% difference in inflation between FY06 and FY08. Again, if these programs are such a priority for the Administration, why do the increases in spending for EERE in FY08 barely match inflation?

Answer. The Budget reflects our Nation's highest priorities, including combating terrorism and protecting the homeland, keeping the economy strong with low taxes, and spending taxpayer dollars wisely while holding non-security spending growth to one percent. The President's pro-growth economic policies, coupled with greater spending restraint, put us on a path to reduce deficits every year and achieve a balanced budget by 2012.

The FY 2008 EERE budget maintains support for key components of the President's Advanced Energy Initiative (AEI), proposing increases for the Biofuels Initiative to develop affordable, bio-based transportation fuels from a wide variety of feedstocks and agricultural waste products by 2012, and for the Hydrogen Fuel Initiative to develop technology options for domestic hydrogen infrastructure and for hydrogen-powered fuel cell vehicles by 2020. Further, the request maintains strong support for: the Solar America Initiative to accelerate the development of materials that convert sunlight directly to carbon-free electricity cost competitively by 2015; wind—energy research to reduce costs and address barriers to large-scale use of wind power in the U.S.; and Vehicle Technologies, to support a range of advanced automobile technologies including plug-in hybrid vehicles.

Question 3. The President has repeatedly stated his desire to reduce America's "addiction" to oil. Given the proposed cuts to NREL's budget—the nation's leading laboratory for biomass and biofuels research, as well as solar and wind energy technologies—please explain how DOE plans to replace 35 billion gallons per year of gasoline with cellulosic ethanol and other alternative fuels while at the same time cutting funding for the very programs likely to help us achieve that goal?

FUNDING SUMMARY

[Dollars in Thousands]

Program/Activity	FY 2006 Approp.	FY 2007 Request	FY 2008 Request
NREL/Biomass & Biorefinery Systems R&D	14,662	27,500	27,500

Answer. The Department of Energy (DOE) is substantially increasing funding for programs that can reduce our "addiction to oil." For example, the Biomass Program budget, which is focused on Biofuels, has been increased by $29 million or approximately 20% between the FY 2007 and FY 2008 Budgets (and by $88 million from FY 2006 enacted to FY 2008 Budget).

Responding specifically to the question concerning the budget request for NREL, the Biomass Program has substantially increased the proposed workload of this laboratory between fiscal year 2006 and 2007. The fiscal year 2008 request is maintained at the same level as 2007. However, the Department maintains the labs should be utilized only where they provide unique facilities or expertise. The Department strives to increase funding allocated for competitive awards to universities and industry wherever possible. It is important to note that the proposed 35 billion

gallon Alternative Fuel Standard has no direct link to funding for any DOE programs.

Question 4. President Bush requested $10 million more ($176 million) than last year for vehicle technologies ($166 million), but that is still $8 million less than we will spend in FY 2007 ($184 million, according to the Administration's estimate) and $6 million less than was spent in FY 2006 ($182.1 million). It is puzzling to me how requesting a cut in this program will help our "need to press on with battery research for plug-in and hybrid vehicles" and "reduce gasoline usage in the United States by 20 percent in the next 10 years" as President Bush stated in his State of the Union address only two weeks ago. I read the definition of "vehicle technologies" in the budget request, and it sounds like a program that should have an increase in funding, given the President's priorities. Here is the definition:

Vehicle Technologies

This program supports the FeedomCAR and Fuel Partnership and the 21st Century Truck Partnership with industry. Program activities encompass a suite of technologies needed for hybrid, plug-in hybrid, and fuel cell vehicles, including lightweight materials, electronic power control and electric drive motors, and advanced energy storage devices. This program also supports research to improve the efficiency of advanced combustion engines, using fuels with formulations developed for such engines, and incorporating non-petroleum based components. In general, program R&D seeks technology breakthroughs that will enable America's highway transportation to greatly reduce petroleum use. The program also includes community-based outreach via Clean Cities collations, competitive awards, and other activities to facilitate the market adoption of alternative fuels and highly efficient automotive technologies.

Mr. Secretary, why was this programs funding cut?

Answer.

FUNDING SUMMARY

[Dollars in Thousands]

Program/Activity	FY 2006 Approp.	FY 2007 Request	FY 2008 Request
Vehicle Technologies	178,351	166,024	176,138

The FY 2008 estimates and proposals are based on the FY 2007 Budget request. Relative to that request, our FY 2008 budget represents a $10 million increase for the Vehicle Technologies Program. The FY 2006 appropriation after adjustment for $24.3 million in Congressional Directed Activities is below the FY 2007 and the FY 2008 requests. We understand that Congress is moving to reduce and/or eliminate these types of Congressional Directed Activities in appropriations and this effort will help the program achieve its goals.

Question 5. For the second year in a row, the Administration would zero out funding for research and development on geothermal and hydropower—both energy sources that have the potential of supplying large quantities of clean base-load power. Why?

Answer. Geothermal power production from high-temperature, shallow resources is now a relatively mature energy technology. Projects under construction, or which have both Power Purchase Agreements and are undergoing production drilling, amount to 489 megawatts in the eight Western States. The Western Governors Association's geothermal task force recently identified more than 100 sites with an estimated 13,000 MW of near-term power development potential.

The MIT report, titled, "The Future of Geothermal Energy," specifically points to the potential benefits of Enhanced Geothermal Systems (EGS) as a long-term energy option for the Nation. For some time, the Department has been aware of the large resource potential of geothermal energy, including those resources accessible with EGS technology. EGS constitutes a potential alternative energy resource for which industry can decide if and when further investment is warranted.

The Government has provided substantial incentives that support the near-term development and deployment of the large geothermal resource base. Geothermal enjoys both an investment tax credit and a production tax credit that improve the technology's competitive position. (Qualifying facilities can claim one or the other, but not both.) The Energy Policy Act of 2005 (EPACT) contains provisions that streamline and accelerate the geothermal leasing process. And state-enacted renew-

able portfolio standards give geothermal energy ready market access in those areas of the country.

Since the 1970s, the Department of Energy has funded research and development in geothermal technology valued in excess of $1.3 billion. That investment has helped to produce the strong market for geothermal energy we see today. The Department will continue to monitor the growth of this industry and the emergence of new technological approaches to geothermal power to determine to what extent a further government role is warranted, if any.

Similarly, industry has demonstrated the ability to achieve hydropower efficiency optimization and fish survivability performance targets without further DOE direct investment. In the fiscal year 2006 Appropriations Conference Report, the conferees recommended $500,000 for hydropower research, directing the Department to "complete integration studies and close out outstanding contracts in advanced hydropower technology."

Question 6. The additional 9% cut to DOE's weatherization program of $20.1 million, on top of a $78.4 million cut in FY07, brings the total cut up to 35% compared to FY2006. This will make it even more difficult for low income residents to save energy so they can afford their utility bills. Weatherization assistance helps low income families control their energy costs over the long term, through the installation of cost-effective energy efficiency technologies. What is the rationale for such drastic cuts in this program in particular?

Answer. Weatherization is the largest-funded program in EERE, at the expense of other research and development (R&D) programs. In order to address this country's energy challenges with the urgency it deserves, we have chosen to prioritize investments in energy efficiency and renewable energy R&D that have multiplicative returns such as improvements to appliances and the building envelope that affect the whole American population rather than additive returns not associated with technological R&D that target a single segment of the population, albeit an important one.

In addition, the expected benefits of each EERE program are shown in our Congressional justification materials. A summary is presented on page 31 and 32 of Energy Supply and Conservation (Volume 3). The table shows that the Weatherization and Intergovernmental Program has the lowest or near lowest expected benefits in all three benefit categories (consumer expenditure savings, carbon emissions reductions, and avoided oil imports). Details of our modeling efforts that produce these results will be available online by March 31, 2007 at http://www1.eere.energy.gov/ba/pba/gpra.html.

CLEAN COAL TECHNOLOGIES

Question 7. Background: Coal is the most abundant domestic energy source. It provides more than 50% of our Nation's electricity needs, and America has enough coal to last more than 200 years. In Colorado, 71% of the electricity we consume is generated with coal. Colorado consumed 18.9 million tons of coal in 2004, generating 37.5 million megawatts of electricity. Most of this coal is from Colorado, but some is from Wyoming.

Based on my review of the President's budget for the coal research initiative, which includes the base coal research program, the Clean Coal Power Initiative (CCPI) and FutureGen, it appears that the two-fold increase in funding for FutureGen ($54 million in FY 07; $108 million for FY 08) once again would come at the expense of basic coal research.

The CCPI program is essential to accelerate development and deployment of coal technologies that will increase the efficiency and reliability of coal-fired power plants. What is the justification for the substantial increase in funding for FutureGen, while CCPI would receive only $15 million in new funding? What about advanced combustion? What about developing alternative methods to capture CO_2 from the fleet of existing coal combustion plants?

Answer. The Administration's FY 2008 Clean Coal budget request supports a balanced R&D portfolio, including the development of advanced combustion technology and methods that could be applied to capturing CO_2 from existing plants. It should also be noted that FutureGen and the basic coal R&D are one and the same coal research program to develop technologies aimed at achieving near-zero emissions from coal plants, including carbon sequestration. As coal research progressively advances from bench-scale to larger scale R&D, their scale-up viability will need to be verified. The most cost-effective and cost-efficient demonstration of these technologies would be to integrate them into a large size facility like FutureGen that combines gasification, advanced coal combustion, power generation, hydrogen production, and carbon capture and sequestration. Integrated demonstration not only

saves the cost of testing in separate facilities, it provides data on individual component performance as well as reliable data on how these components interact under varying integrated system operating conditions.

The FutureGen funding requests of $54 million and $108 million for FY 2007 and FY 2008, respectively, are consistent with the funding profile estimate (adjusted for escalation) that the Department submitted to Congress in a program summary dated March 2004.

The FY 2008 funding request of $73 million for the Clean Coal Power Initiative (CCPI), includes $58 million of funds from the Clean Coal Technology (CCT) account that are no longer needed for ongoing projects. Available unobligated prior year funds from projects that did not go forward in CCT and CCPI, combined with CCPI FY06, FY07, and FY08 funding are expected to be sufficient to issue the next round CCPI solicitation in FY 2008 for advanced clean coal demonstrations, which will focus on advanced technology systems that capture carbon dioxide for sequestration and beneficial reuse. Using unobligated balances from stalled projects will help CCPI reduce its backlog of unobligated balances, currently at about $500 million.

Many of the technologies being developed in the clean coal research portfolio are applicable to advanced combustion. These technologies include high temperature materials for supercritical combustion system boilers and steam turbine blades, advanced oxygen production applicable to oxy-fuel combustion, and capture and sequestration technologies and methods for CO_2 emissions from existing coal combustion plants.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR MURKOWSKI

GEOTHERMAL

Question 1. Alaska has a host of excellent geothermal prospects involving both high temperature and lower-temperature geothermal prospects, as do most of the western states. Is there any way to convince the Department to continue funding research and providing grants to help identify good geothermal prospects, because while the technology for high-temperature geothermal is proven, the technology for low-temperature is still evolving as you proved just last summer at Chena Hot Springs in Alaska. Recent studies show that geothermal energy could meet 10 percent of the nation's total energy needs by 2050. But it won't meet such a goal without any federal assistance.

Answer. The DOE Geothermal Program has achieved key research objectives for conventional hydrothermal technology development. Geothermal power production from high-temperature, shallow resources is now a relatively mature energy technology. Projects under construction, or which have both Power Purchase Agreements and are undergoing production drilling, amount to 489 megawatts in the eight Western States. The Western Governors Association's geothermal task force recently identified over 100 sites with an estimated 13,000 MW of near-term power development potential.

The MIT report, titled, "The Future of Geothermal Energy," specifically points to the potential benefits of Enhanced Geothermal Systems (EGS) as a long-term energy option for the Nation. For some time, the Department has been aware of the large resource potential of geothermal energy, including those resources accessible with EGS technology. EGS constitutes a potential alternative energy resource for which industry can decide if and when further investment is warranted.

The Government has provided substantial incentives that support the near-term development and deployment of the large geothermal resource base. Geothermal enjoys both an investment tax credit and a production tax credit that improve the technology's competitive position. (Qualifying facilities can claim one or the other, but not both.) The Energy Policy Act of 2005 (EPACT) contains provisions that streamline and accelerate the geothermal leasing process. And state-enacted renewable portfolio standards give geothermal energy ready market access in those areas of the country.

Since the 1970s, the Department of Energy has funded research and development in geothermal technology valued in excess of $1.3 billion. That investment has helped to produce the strong market for geothermal energy we see today. The Department will continue to monitor the growth of this industry and the emergence of new technological approaches to geothermal power to determine to what extent a further government role is warranted, if any.

OCEAN ENERGY

Question 2. Coming from Alaska, where we have at least 80 towns and villages on the coast or on major rivers, ocean energy, leashing the power of the tides, cur-

rent and waves, seems like an excellent renewable, non-greenhouse gas emitting technology to be promoting. The new technology is showing true promise. Why is the Department providing no research or technology implantation support in your budget?

Answer. Department is observing the growth of interest, activity, and investment in wave and tidal technologies. We recognize that several states have promising opportunities for harnessing these forms of ocean and tidal energy, and thus we are monitoring domestic and worldwide progress in ocean energy technologies in collaboration with the Electric Power Research Institute and the International Energy Agency. Some countries with higher resource potential than the United States, relative to their overall energy needs, are active in ocean and tidal energy R&D. Ocean, wave, and current technologies are still in their infancy, with a small number of demonstration systems operating worldwide. The Department will continue to consider emerging technologies like these in evaluating its research, development and deployment programs.

The Department is also supporting a wave energy technology R&D project via the Small Business Innovation Research Program. The U.S. Navy also supports ocean energy research. In addition there may be opportunities for Federal agencies to satisfy the green power purchase requirements mandated by the Energy Policy Act of 2005.

CARBON SEQUESTRATION AND ENHANCED OIL RECOVERY

Question 3. EPACT '05 called for funding a demonstration project to increase oil recovery from aging fields by pumping carbon dioxide into the fields-both increasing oil production and sequestering carbon. You did award a demonstration grant last year (Oil and gas program announced this in FY'06). Your budget talks about funding 4 large projects Nationwide. Can you talk more about what and where you anticipate those projects being and what the Department hopes to learn. Alaska's Cook Inlet and the Williston Basin in the Dakotas were both specifically stated as good places for such demonstrations to be held in EPACT and neither was chosen. Given that DOE studies indicate that the Cook Inlet could yield an additional 670 million barrels of oil if helped by a CO_2 recovery effort, I'm trying to understand why Cook Inlet wasn't funded last year and whether it might yet be considered for assistance.

Answer. Regarding the funding of four (4) large-scale carbon sequestration projects nationwide, DOE eventually hopes to demonstrate and validate the capability to safely store at least 1 million tons of carbon dioxide in multiple, diverse geological formations, consistent with the goals of the Department's Sequestration Program. The Sequestration R&D Program's highest priority is to demonstrate and validate the capability to safely and predictably store large volumes of CO_2 over millennia. Before the sites are selected, preparatory work including site evaluation, site characterization R&D, and completion of National Environmental Policy Act (NEPA) review must be completed.

While the four large projects discussed in the FY 2008 Budget are to be funded from the Sequestration Program, the demonstration project award last year was funded from the Oil and Gas Program. That demonstration project was selected through a peer review process of all the proposals received as a result of the competitive solicitation issued by the DOE's National Energy Technology Laboratory. Because of the recommendation in the FY 2008 budget to terminate the Oil and Natural Gas Program, it is unlikely to issue another solicitation.

On the other hand, the Sequestration Program has and will continue to pursue initiatives in the research of CO_2 sequestration in various geologic reservoirs such as depleted oil and gas fields, producing oil fields to enhance recovery, saline formations, coals seams with enhanced coal-bed methane production, and other promising formations. Within the Regional Partnership Program, there are twenty-five (25) small-scale sequestration injection tests being planned. These tests include depleted oil and gas fields, saline reservoirs, stacked saline and enhanced oil recovery reservoir tests, and coal seams with enhanced coal-bed methane production. In addition to the Regional Partnership Program, research and testing are continuing in other sequestration field tests including an injection test in a saline formation in Frio, Texas, and enhanced oil recovery projects at the Weyburn and Apache oilfields in Saskatchewan, Canada that utilize CO_2 produced at the Great Plains Coal Gasification Plant.

No decision has been made as to whether the Sequestration Program in FY 2008, or subsequently, will fund projects in Alaska's Cook Inlet or the Williston Basin.

HEAVY OIL

Question 4. I understand the Department is reducing fossil fuels research given current high market prices for oil. But I would suggest there are still good research areas out there in the fossil arena: "heavy oil" production being one of them. You were going to fund a production test well at Prudhoe Bay to research a new technology to coax heavy oil out of the ground, but there was a problem last year with drill availability. Are you going to continue that work this year or next year, and if not, why not? When we know there is more than 30 billion barrels of heavy oil in place, it is hard to argue that research to get it out of the ground is not worthwhile.

Answer. The Department did not fund a heavy oil test well in Prudhoe Bay. However, the Department had planned a 2006 methane hydrate test well in Milne Point oilfield, which was delayed because of problems with drilling rig availability. The well was finally spudded on February 3, 2007, and completed February 19. Over 400 feet of core, including two thick, hydrate-bearing units, were collected. After on-site analysis, the core was preserved for future laboratory study. Fluid and reservoir flow-properties data was collected from several hydrate-bearing zones. Detailed well information is available at www.fe.doe.gov or www.net1.doe.gov. Test results and analysis will be available in a few months.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR MENENDEZ

Question 1. Secretary Bodman, you claimed that you thought the Weatherization Program was a bad investment because for the roughly $3,000 cost of weatherizing a home, the program only returned about $300 in benefits. You failed to note that it provides those $300 in benefits, which is actually $358 in benefits, each year. On average, these savings persist for 17 years, making the program a tremendous return on the investment. Do you agree that, despite your statement during the hearing, each weatherized house returns greater savings than the initial investment?

Answer. As I testified, first-year per household savings are roughly $300 for an up-front investment of roughly $2,500, on average. Indeed, our internal program assessment shows a positive return on investment over the assumed life of the weatherization improvements using EIA projections of energy costs. Our latest study shows a benefit-cost ratio of 1.5. A comprehensive external assessment is underway. Of course, the benefit-cost ratio represents a wealth transfer: the costs are borne by all taxpayers, while the benefits accrue to those whose homes are weatherized. The context of my comments referred to economic return relative to all our research and development programs and technology investments, for each program dollar invested. The expected benefits of each EERE program are shown in our Congressional justification materials. A summary is presented on page 31 and 32 of Energy Supply and Conservation (Volume 3). The table shows that the Weatherization and Intergovernmental Program has the lowest or near lowest expected benefits in all three benefit categories (consumer expenditure savings, carbon emissions reductions, and avoided oil imports). Details of our modeling efforts that produce these results will be available online by March 31, 2007 at http://www1.eere.energy.gov/ba/pba/gpra.html.

Question 2. Would you agree that a greater than 10% return on an investment per year is actually a very good return?

Answer. As noted above, the expected benefits of the Weatherization program are low when compared to other investments in Energy Efficiency and Renewable Energy technology programs.

Question 3. Could you explain why weatherization doesn't have any consumer savings benefit listed under the GPRA table in your budget justification?

Answer. The Department's budget request presents estimated per-household consumer savings on page 429 of Energy Supply and Conservation. Those savings, $274, are estimated first-year cost savings per-household, using historical results from 1993–2002, for homes weatherized in 2006, based on energy prices in the 2005 EIA Annual Energy Outlook. We do have analysis that models how those consumer benefits can be projected over time for presentation in the GPRA table, but those estimates were not ready before the budget went to print. We will be publishing a revised GPRA table as an amendment to the FY 2008 budget. Details of our modeling efforts that produce these results will be available online by March 31, 2007 at http://www1.eere.energy.gov/ba/pba/gpra.html.

Question 4. Given that the budget claims a yearly savings from weatherization of $274 per year (on page 429 of the EERE Congressional Justification), yet you have confirmed that the actual savings is $358 per year, does this change the calculation of future benefits from the weatherization program?

Answer. As you are aware, energy costs vary over time, and we regularly update our estimated consumer savings to reflect changing energy prices. Our most recently published information, available on our web-site, updates the per-household first-year cost savings estimate to $358 based on energy prices in the 2006 EIA Annual Energy Outlook.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR JOHNSON

Question 1. The FY 2008 Budget Request provides that the interest rate for future debt obligations owed to the Treasury by Southwestern, Southeastern, and Western for all power-related investments whose interest rates are not specified in law be raised to equal the "agency rate" governmental corporations borrow from the Treasury—reportedly to reflect the potential "risk" of non-payment, but more realistically just a "tax" on select electric consumers.

What evidence can you show that the PMAs pose a default risk to treasury to justify this unilateral interest rate increase?

Answer. Although the power marketing administrations (PMAs) pose a low risk of default to the U.S. Treasury, the risk is not zero. This is because the ability of the PMAs to repay the Treasury is dependent on their ability to collect revenues from the sale of power and related services. For example, physical catastrophes (e.g. a dam failure), electricity market volatility, problems with customer credit, or availability of cheaper non-Federal energy sources could adversely affect the PMAs' ability to market their power in the future.

The "yield" rate is the rate paid on securities backed by the full faith and credit of the United States Government. The "agency rate" of interest paid by government corporations and the Bonneville Power Administration better reflects the risk of default than the "yield" interest rate the three PMAs currently use on investments whose interest rates are not set by law.

Question 2. Congress rejected this proposal for FY '07 by including language in the Continuing Resolution (H.J. Res 20) that would prevent the Administration from implementing this proposal without legislation. Where does the Administration derive the authority to administratively change the future debt obligations by the four federal power marketing administrations?

Answer. The Executive Branch has the authority to administratively change interest rates for those power systems where the rate is not specified in law. The authority to set interest rates for the power marketing administrations is based on sections 301(b), 302(a) and 644 of the Department of Energy Organization Act (42 U.S.C. § 7101 et seq.), section 5 of the Flood Control Act of 1944 (16 U.S.C. 825s), and the Reclamation Act of 1902 (43 U.S.C. 372 et seq.), as amended and supplemented by subsequent enactments, particularly section 9(c) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)). This budget proposal only applies to three power marketing administrations; it does not apply to Bonneville Power Administration.

Question 3. The Department of Interior's FY 2008 Budget Request also calls for a reassignment of the costs of unbuilt irrigation projects in the Pick-Sloan region to federal power customers in the region. This proposal would require legislation to be implemented, and Congress has soundly rejected it in each of the past two years.

Has the Department of Interior consulted with you on this proposal?

Answer. No. The Department of the Interior did not consult with the Department of Energy when it proposed in the FY 2008 budget request to include a call for reassignment of the costs of undeveloped irrigation projects of the Pick-Sloan program to federal power customers in the region. However, at the staff level, we were informed by the Bureau of Reclamation at a meeting in January 2007 that Interior would again propose the cost reassignment for FY 2008.

Question 4. If and when you do hear from Interior, do you intend to share with them the fact that any change in project cost allocation must be holistic and reflect all changes in project benefits?

Answer. Yes. Pick-Sloan is an ultimate development project with many functions and features. The authorized purposes for the project are flood control, navigation, irrigation, municipal and industrial water supply and power, with a relatively small amount of costs assigned to recreation and other purposes (benefits which were difficult to quantify at the time the existing cost allocation was established). The budget proposal focuses only on transferring costs from undeveloped irrigation to the Federal power customers; however, we believe that all aspects of the cost allocation should be reviewed. For example, the dams on the Missouri River have provided flood control benefits worth many millions of dollars to downstream states. This benefit is not adequately reflected in the existing allocation of costs.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR AKAKA

RADIOLOGICAL SOURCES

Question 1. I see that your proposed budget for the international radiological threat reduction program in NNSA (National Nuclear Security Administration) has steadily been reduced since FY 2006. However, to my knowledge, much work to control high-radiological sources around the world remains to be done. Can you explain why this program continues to be reduced, while other fissile material control programs have gone up considerably?

Answer. NNSA is committed to securing and removing vulnerable radiological sources around the world. Over the past several years, NNSA has accelerated efforts to secure vulnerable sources and NNSA has secured more than 500 vulnerable radiological sources worldwide since 2002. However, much work remains to be done to control high-risk radiological sources and there are thousands of additional vulnerable radiological sources that need to be secured worldwide.

With regard to the FY 2008 budget request, there were several factors that led to the funding request of $6 million for GTRI's International Radiological Threat Reduction program. First, GTRI's highest priority is to ensure that Presidential commitments are fully met in accordance with the Bratislava Joint Statement on Nuclear Security Cooperation. GTRI has three program elements that are part of the February 2005 Bratislava Joint Statement between Presidents Bush and Putin. These include converting research reactors from the use of HEU to LEU under our Reduced Enrichment for Research and Test Reactors (RERTR) Program, returning Russian-origin fresh and spent fuel under our Russian Fuel Return program, and returning U.S.-origin spent fuel under the U.S. Foreign Research Reactor Spent Nuclear Fuel Acceptance Program. These elements are fully funded in the FY '08 budget request. A second factor in our budget process was to fully fund those GTRI elements that had firm Secretarial completion dates. For example, when GTRI was established in May 2004, former Secretary of Energy Abraham committed that GTRI would convert 105 research reactors from the use of HEU to LEU by 2014. In addition, he stated publicly that all Russian-origin spent fuel would be removed by 2010. Therefore, the FY '08 budget request ensures that these program elements are fully funded. However, GTRI's International Radiological Threat Reduction (IRTR) program does not have any firm Secretarial completion dates. Lastly, NNSA's internal prioritization process places a higher priority on reducing the risk of terrorists stealing HEU that could be used in an Improvised Nuclear Device over reducing the risk of terrorists stealing a radiological source that could be used in a Radiological Dispersal Device (RDD) or "dirty bomb". This is due to the catastrophic and devastating consequences of a terrorist detonating a nuclear bomb. To this end, the FY 2008 budget request also seeks a significant increase for the safe and secure storage of BN-350 spent fuel in Kazakhstan. The BN-350 project has a firm completion date of 2010 (completion of movement to Baikal-1 storage facility) as agreed with the Kazakh government. Therefore, within budget limitations, these factors played a key role in determining the budget request for GTRI's International Radiological Threat Reduction program in FY '08. However, the IRTR program remains a priority for NNSA since it is the only U.S. Government program that secures vulnerable sources internationally.

SOLAR ENERGY

Question 2. Based on the EPACT of 2005, all solar water heaters that are eligible for the tax credit must be certified by the Solar Rating and Certification Corporation (SRCC). There is currently an 18-month backlog at this facility—almost as long as the remaining credit. This seems to me to be a market barrier to solar expansion. Why, then, did the Department decide to fund the solar heating program at only $2 million, and what are you doing to address the backlog?

Answer. There is no relationship between the Solar program's R&D budget for solar heating and lighting and certification by the SRCC. But we are helping the industry in other ways. We just held a workshop (January 2007) with the solar water heating industry and other stakeholders (e.g. utilities, builders, state energy offices) to discuss market barriers and the actions needed to expand the market for the technology. The Department of Energy (DOE) is committed to helping industry increase and accelerate the market acceptance of solar water heaters. DOE is working with Solar Rating and Certification Corporation (SRCC) to help it decrease its backlog. In the interim, there are many collectors and systems that are already certified and eligible for the tax credit. There is also a second facility near Toronto which does testing for SRCC that does not have a lengthy backlog.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR WYDEN

OCEAN ENERGY

Question 1. Mr. Secretary, recent estimates suggest that utilization of new, carbon-free, technologies to tap energy from waves, and tidal and ocean currents, could provide nearly 10% of total U.S. electricity requirements with technology now being developed, and perhaps far more. Yet, last year, you requested no money whatsoever for hydropower, and this year, the same . . . nothing. You are asking for over $500 million for next year to develop the next generation of nuclear power plants, but nothing to develop the next generation of hydroelectric plants, such as ocean energy. Why not?

Answer. The Department is observing the growth of interest, activity, and investment in wave and tidal technologies. We recognize that several states have promising opportunities for harnessing these forms of ocean and tidal energy, and thus we are monitoring domestic and worldwide progress in ocean energy technologies in collaboration with the Electric Power Research Institute and the International Energy Agency. Some countries with higher resource potential than the United States, relative to their overall energy needs, are active in ocean and tidal energy R&D. Ocean, wave, and current technologies are still in their infancy, with a small number of demonstration systems operating worldwide. The Department will continue to consider emerging technologies like these in evaluating its research, development and deployment programs.

The Department is also supporting a wave energy technology R&D project via the Small Business Innovation Research Program. In addition there may be opportunities for Federal agencies to satisfy the green power purchase requirements mandated by the Energy Policy Act of 2005.

GEOTHERMAL

Question 2. Mr. Secretary, MIT, where you received your doctorate and taught chemical engineering, recently issued a report on the future of geothermal energy. The MIT team noted that the potential energy available from geothermal in the U.S. is thousands of times our total energy consumption. The report concluded that with a reasonable investment in new geothermal technologies, the U.S. could have 100,000 megawatts of geothermal-powered electricity capacity within the next 50 years. That's equivalent to 166 large coal plants of base-load capacity with a minimal release of greenhouse gases. The European Union is spending money on this research, but not DOE. Last year, you requested no funding for geothermal. And this year, again, you are not requesting any funding for geothermal. You are asking for more money in this budget for fusion energy research for one year ($428 million), than the MIT report proposes for the entire advanced geothermal research program. Why isn't any funding being requested for geothermal research?

Answer. The DOE Geothermal Program has achieved key research objectives for conventional hydrothermal technology development. Geothermal power production from high-temperature, shallow resources is now a relatively mature energy technology. Projects under construction, or which have both Power Purchase Agreements and are undergoing production drilling, amount to 489 megawatts in the eight Western States. The Western Governors Association geothermal task force recently identified over 100 sites with an estimated 13,000 MW of near-term power development potential.

The MIT report, titled, "The Future of Geothermal Energy," specifically points to the potential benefits of Enhanced Geothermal Systems (EGS) as a long-term energy option for the Nation. For some time, the Department has been aware of the large resource potential of geothermal energy, including those resources accessible with EGS technology. EGS constitutes a potential alternative energy resource for which industry can decide if and when further investment is warranted.

The Government has provided substantial incentives that support the near-term development and deployment of the large geothermal resource base. Geothermal enjoys both an investment tax credit and a production tax credit that improve the technology's competitive position. (Qualifying facilities can claim one or the other, but not both.) The Energy Policy Act of 2005 (EPACT) contains provisions that streamline and accelerate the geothermal leasing process. The Department's $9 billion request for loan guarantees, authorized by EPACT, will help to spur on new development. And state-enacted renewable portfolio standards give geothermal energy ready market access in those areas of the country.

Since the 1970s, the Department of Energy has funded research and development in geothermal technology valued in excess of $1.3 billion. That investment has helped to produce the strong market for geothermal energy we see today. The De-

partment will continue to monitor the growth of this industry and the emergence of new technological approaches to geothermal power to determine to what extent a further Government R&D role is warranted, if any.

CELLULOSIC BIOMASS

Question 3. The Department's "Billion Ton" study of the potential energy from biomass identified forest biomass as making up more than quarter of available biomass. Yet, I am hard pressed to find where in your budget you are devoting any resources to the development of forest biomass. For the record, I would like you to provide the specific activities within the Department aimed at developing forest biomass and the funding for those activities.

Answer. Our biomass program is requesting more than $20 million in its FY 2008 budget request to fund cutting-edge methods of producing ethanol from agricultural residues, wood and forest residues.

- Under the "Platform R&D" line item, the Thermochemical Platform is focused on developing gasification and pyrolysis technologies that will utilize primarily woody and forest resources for biofuels.
- Under the "Feedstock Interface Platform" line item, we request funds to establish Regional Feedstock Partnerships with a number of organizations, including USDA, several universities, industrial partners, and State organizations. This work will facilitate the development of regional biomass resources, including woody and forest resources. The Department of Energy plans to work with and through the regional partnerships to develop and validate accurate cost supply information and improved understanding of all key components of the supply chain of all feedstocks under consideration, with a substantial emphasis on woody biomass, due to its prevalence in many regions.
- Under the "Utilization of Platform Outputs" line item, companies that own processes converting woody biomass (forest products and wood waste) into ethanol have been eligible to participate into the section 932 solicitation for a commercial biorefinery.

The Departments of Energy; Agriculture and Interior have worked for 4 years under a Memorandum of Understanding (MOU) for Woody Biomass Utilization for Restoration and Fuel Treatments on Forest, Woodlands, and Rangelands. This MOU aims to maximize the coordination and effectiveness of the three departments in developing complementary policies to encourage harvest and use of woody biomass byproducts. To further facilitate our collaborative efforts, we formed an Interdepartmental Woody Biomass Utilization Working Group (Federal Working Group). New partners include the Environmental Protection Agency, and the Department of Defense.

INDUSTRIAL EFFICIENCY

Question 4. According to EIA, about one third of our total U.S. energy consumption is consumed by the industrial sector. These companies, as we all know, must now compete in the global economy and for many industries—such as the pulp and paper industry in my state—energy costs are major factor in their ability to compete. Last year, your budget request cut funding for industrial technologies by more than $10 million to $45 million and this year you are requesting the same level—at $45 million. In the process, however, you also propose to cut every single industry-specific program. Funding for the forest and paper products industry is cut to $1.7 million. You propose to cut funding for the aluminum industry to $1.7 million. Funding for the glass industry you propose to cut to zero. Funding for the mining industry also would be cut to zero. Instead of giving these industries the help they need to become more competitive, you are going to work on technologies that are "crosscutting." Please explain, for each industry in the industrial technology program, what industry-specific programs will be cut and how, for each industry, the new "cross-cutting" research will replace and improve upon the assistance that it replaces including the economic competitiveness of those industries over the next one, two, three, four, and five years, respectively.

Answer. The Industrial Technologies Program (ITP) has historically worked with the eight most energy-intensive manufacturing industries to research, develop, and implement advanced technologies that save energy, cut costs, and reduce emissions. While these activities have contributed to reducing overall industrial energy consumption, the industrial landscape is changing rapidly. ITP is focusing its technology research to be widely applicable to the U.S. industrial base. ITP is working to leverage developments through Original Equipment Manufacturers (OEMs) and end-users. ITP has identified four technology areas (Reactions & Separations, High

Temperature Processes, Energy Conversion Systems, and Fabrication & Infrastructure) for research which include all the technology areas and interests of the traditional energy intensive industries (e.g. Forest Products, Glass, Aluminum and Mining) and is applicable to a much broader array of industry members. These technology areas were identified using ITP industrial analyses, industrial stakeholder roadmaps and other feedback. In FY2007, ITP is issuing two solicitations based on these technology areas. All U.S. industries are encouraged and expected to participate.

WEATHERIZATION

Question 6. It's not in your budget, Mr. Secretary, but the President's budget requests $1.8 billion in Low Income Home Energy Assistance to help states and Indian tribes assist people in paying their utility bills. Unfortunately, that number isn't big enough to help everyone that needs help. But what is in your budget is the Weatherization Assistance Program which is intended to help these same people weatherize their homes so they won't get hit with these big bills in the first place. You requested just $144 million for this program, a cut of $20 million. Please explain why the Administration chose to cut $20 million from this program request? Please also explain, why the Administration believes that it makes more sense to provide millions of dollars in low-income energy assistance each year than it does to weatherize the homes of the recipients of this aid so that the impacts of energy bills can be alleviated in the first place.

Answer. Weatherization is the largest-funded program in EERE, at the expense of other research and development (R&D) programs. In order to address this country's energy challenges with the urgency it deserves, we have chosen to prioritize investments in energy efficiency and renewable energy R&D that have multiplicative returns such as improvements to appliances and the building envelope that affect the whole American population rather than additive returns not associated with technological R&D that target a single segment of the population, albeit an important one.

In addition, the expected benefits of each EERE program are shown in our Congressional justification materials. A summary is presented on page 31 and 32 of Energy Supply and Conservation (Volume 3). The table shows that the Weatherization and Intergovernmental Program has the lowest or near lowest expected benefits in all three benefit categories (consumer expenditure savings, carbon emissions reductions, and avoided oil imports). Details of our modeling efforts that produce these results will be available online by March 31, 2007 at http://www1.eere.energy.gov/ba/pba/gpra.html.

STRATEGIC PETROLEUM RESERVE EXPANSION

Question 7. The budget proposes to begin increasing the size of the Strategic Petroleum Reserve to 1.5 billion barrels. What is the cost of this increase, from (1) the current level, and (2) the 1 billion barrel level authorized in EPACT 2005 in terms of the following: (1) total capital construction of storage and transport facilities, and the schedule of annual outlays, (2) acquisition of the additional oil, and the schedule of annual outlays, (3) the additional operational costs of maintaining this additional capability.

Answer. For facilities expansion to one billion barrels from the current capacity of 727 million barrels, the estimated cost will approach almost $4 billion over several years. The costs include expanding capacity at two existing sites by developing additional caverns at an estimated cost of over $700 million, and constructing a new site capable of storing 160 million barrels of crude oil near Richton, Mississippi at an estimated cost of about $3 billion, based on very preliminary designs. These cost estimates will likely increase as we develop more detailed plans. Facilities expansion from 1 billion barrels to 1.5 billion barrels is estimated to cost almost $7 billion.

The total value of oil required to reach a 1.5 billion barrel inventory is about $53 billion.

The Department's FY 2008 budget request includes $168 million to begin facilities expansion activities to 1 billion barrels by acquiring land and rights of way, and to begin detailed design work. It also includes funding for NEPA activities for facilities expansion from 1 billion barrels to 1.5 billion barrels.

The estimated increase in the level of operations and maintenance resulting from the expansion to 1 billion barrels is $40 million per year. The increase associated with increasing the capacity from 1.0 to 1.5 billion barrels is $70 million per year.

ALBANY, OREGON RESEARCH LABORATORY PRIVATIZATION

Question 9. Mr. Secretary, your Department has proposed to privatize one of your laboratories located in Albany, Oregon. This laboratory is staffed by some six dozen federal employees and specializes in research on the formulation, fabrication, testing and analysis of metals, alloys and ceramics. They do not have multi-billion dollar user facilities such as light or neutron sources. What they do have is people—people who specialize in this particular area of materials research. Unlike most every other DOE lab where most employees simply go to work for the new contractor, these are federal employees who will stop being federal employees if they go to work for the new contractor or they will need to go to some other federal agency. Why do you personally think it makes sense to split up this small research team and bring in a contractor? Please describe how the contractor will increase the effectiveness of the research done at this facility, over the next five years and the next ten years, respectively. Please also itemize the cost savings to the taxpayer of this change, including the net costs of contractor overhead, award fees, pension payments, insurance, etc. compared with the costs of a federally-owned, federally-operated facility.

Answer. DOE launched its competitive sourcing program, part of the President's Management Agenda, in March 2002. Since that time, seven of the Department's nine completed OMB Circular A-76, Performance of Commercial Activities public-private competitions have been won by the Government's in-house team. The Department anticipates savings and costs avoidance of approximately $540 million, compared to baseline costs, as a result of these competitions. The Department's on-going studies are also expected to yield significant savings and operational efficiencies.

The current on-going A-76 competition associated with the commercial activities performed at NETL-ARC laboratory does not pre-suppose bringing in a new contractor to do the work currently being performed by Federal employees. The objective is to allow the current NETL-ARC laboratory to compete with private sector organizations in order to determine which service provider could provide the best value to the American taxpayer. The use of competition has helped the Department avoid unnecessary costs and operate more effectively. DOE employees have successfully used this process to eliminate inefficiencies in their activities and demonstrate their value to the taxpayer. As the NETL-ARC competition is on-going, cost and efficiency data associated with any of the bids is procurement sensitive and cannot be released at this time.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR THOMAS

Question 1. We talk a lot about alternative fuels and we need to be doing things. The ability alternatives to make a real difference is a ways off, however. We need to in the short term to make fossil fuels cleaner and more efficient. On a federal level, it is the Department of Energy's job to make sure that happens. Fossil Energy funding is being reduced by $25 million. The EIA shows that fossil energy will play an important role in our energy mix for decades to come.

Please explain why fossil energy funding for national research is being decreased rather than increased?

Answer. We agree that fossil energy will play an important role in our energy mix for decades to come. We believe that the President's fiscal year 2008 budget request reflects a commitment to a strategic coal research program, including a significant increase in funding, which will allow us to achieve that goal of making fossil fuels cleaner and more efficient. We also believe it represents a balanced portfolio of critical coal research that will allow us to achieve our program goals. The oil and gas programs are terminated, because industry has the resources and incentive to conduct this research and development on their own. Savings from the oil and gas programs are slightly greater than the increase in funding for the coal program.

During the 2000 campaign, the President committed to spend $2 billion over 10 years on clean coal technology. The 2008 budget request completes that commitment 3 years ahead of schedule, with $385 million in funding for the Coal Research Initiative in 2008. The funding levels in the 2008 budget request for clean coal activities are among the highest in this Administration and also from any President in the last two decades. This budget supports key activities to keep coal an important part of our domestic energy solution:

- The FutureGen project and a strong supporting R&D program will advance near-zero emissions technology, including large-scale tests of carbon sequestration.
- A new solicitation in the Clean Coal Power Initiative will demonstrate near-commercial advanced technologies, complementing the $1.65 billion in tax in-

centives for deployment of early commercial clean coal technologies that the Administration is implementing under the Energy Policy Act of 2005.

The oil and gas R&D programs focus on technologies that can be commercialized quickly. Especially with high oil and gas prices, oil companies have strong incentives to figure out ways to get the oil out of the ground more cheaply and safely. Analysis of the program shows that it has not been very effective.

The Administration strongly supports a variety of research and development that will strengthen the Nation's energy security, and is proposing to make the R&D investment tax credit permanent. The 2008 Budget includes initiatives for hydrogen fuel, biofuels, plug-in hybrid vehicles, clean coal, nuclear, and solar photovoltaics to help displace future demand for oil and natural gas. The Administration also supports removing unnecessary barriers to developing existing reserves of oil and gas including, for instance, the environmentally responsible exploration and development of reserves in Alaska.

Question 2. Numerous successes have resulted from the DOE Oil & Gas Programs this year. Small independent producers have testified to Congress about the need for federal R&D. They have also emphasized the importance of continuing government collaboration and research. Yet again, as was the case last year, funding for the oil and gas programs has been zeroed out. I fully understand that the Department does not want to fund major oil and gas producers. However, 94 percent of the funding for fossil R&D is directed to the needs of the 5,000 independent oil and gas companies. These companies employ less than 20 people, on average. We must not let politics overshadow responsible policy decisions.

How can you justify zeroing out these R&D programs when our nation is, at this very time, trying to lessen its dependence on imported oil & gas?

Answer. The Administration strongly supports a variety of research and development that will strengthen the Nation's energy security, and is proposing to make the R&D investment tax credit permanent. The 2008 Budget includes initiatives for hydrogen fuel, biofuels, plug-in hybrid vehicles, clean coal, nuclear, and solar photovoltaics to help displace future demand for oil and natural gas. The Administration also supports removing unnecessary barriers to developing existing reserves of oil and gas including, for instance, the environmentally responsible exploration and development of reserves in Alaska.

Oil and gas are mature industries and both have every incentive, particularly at today's prices, to enhance production and continue research and development of technologies on their own. There is no need for taxpayers to subsidize oil companies in these efforts. Although independent operators may not fund technology development directly, the service industry that supplies them with equipment funds significant development of applicable technologies. The Department expects the service industry to continue to provide technological innovations for use by major and independent producers.

Question 5a. The DOE budget request terminates $23 million in funding for "Improvements to Existing Plants". There are over 1,500 coal-fired electricity plants in the United States. These plants provide Americans with more than half of the electricity that they need. I am aware of many technologies, which are available now and can improve environmental performance. DOE must support the commercialization of these technologies, however.

Is the Elimination of this funding a sign that DOE has given up on improving the generation fleet that we already have in this country?

Answer. The IEP program has been developing low cost technologies for reducing emissions from existing coal power plants in anticipation of regulatory limits that are now being implemented through the Clean Air Interstate Rule and the Clean Air Mercury Rule. The IEP program has been very successful, and CAIR and CAMR were promulgated in 2005. These regulatory drivers provide industry an incentive to continue development and deployment of such technologies on their own. The government role in development of these technologies has shifted to the private sector.

Question 5b. The DOE budget request terminates $23 million in funding for "Improvements to Existing Plants". There are over 1,500 coal-fired electricity plants in the United States. These plants provide Americans with more than half of the electricity that they need. I am aware of many technologies, which are available now and can improve environmental performance. DOE must support the commercialization of these technologies, however. What other components of the Department's budget are capable of supporting environmental improvements at existing plants and how much money is included therein?

Answer. There are three other, principal components of the DOE budget, all under FE, which support the development of environmental control technology that could be applicable to existing coal fired power plants:

- The Clean Coal Power Initiative, by 2010 will initiate demonstration of advanced coal-based power generation technologies capable of achieving: 45 percent electrical efficiency; greater than 90 percent mercury removal at'a cost of 70 percent of current technology; and 0.15 lb/MMBtu NO_X at 75 percent of the cost of current technology (selective catalytic reactors). These technologies could be configured to co-produce heat, fuels, chemicals or other useful byproducts, and provide a deployment-ready suite of advanced technologies that can produce substantial near-, mid-, and long-range economic and environmental public benefits. (FY 2008 Request $73,000,000)
- The FutureGen project will prove the technical feasibility and economic viability of the "near-zero atmospheric emission" (including carbon) coal concepts (FY 2008 Request $108,000,000).
- By 2012, begin operation of a nominal 275-megawatt prototype plant that will produce electricity and hydrogen with "near-zero" atmospheric emissions and prove the effectiveness, safety, and performance of CO_2 sequestration.
- The Carbon Sequestration program, by 2012 will develop technologies to separate, capture, transport, and sequester carbon using either direct or indirect systems that result in a less than 10 percent increase in the cost of electricity. (FY 2008 Request $79,077,000)

Near-term derivatives from these programs can be expected to contribute significantly to improving the performance of the current fleet.

Question 6. DOE has manufactured $257 million for themselves in this request by eliminating the Clean Coal Technology (CCT) account, which has been replaced by the Clean Coal Power Initiative. The Department is hoping to move $108 million from CCT elimination to FutureGen. The remaining $149 million would go back to the Treasury. When Congress appropriated those funds, they were meant to advance clean coal technologies. How do you justify the disregard for congressional intent as evidenced by the proposed rescission of the aforementioned $149 million?

Answer. The $149 million rescission and the $108 million reprogramming requests are proposals to the U.S. Congress to act on and are not unilateral actions in disregard to the original Congressional intent. The $257 million represents prior year available funds from Clean Coal Technology (CCT) demonstration projects that did not go forward. CCT demonstration projects that were awarded have been successful in demonstrating early advances coming out of the clean coal research effort. The Clean Coal Power Initiative (CCPI) builds on the successes of the original CCT demonstration program, and focuses on the next generation technologies from coal research advances made since the last CCT demos (Round 5). Technologies from the clean coal R&D effort have progressed to the point where they can be integrated into a near-zero atmospheric emissions coal facility, namely FutureGen, the world's first such facility that will also capture and sequester CO_2 (a greenhouse gas) from a power plant.

The Administration believes the FY 2008 request is consistent with the goals of advancing clean coal technologies.

Question 7. It is the people at the National Energy Technology Laboratory that facilitates research for the goals. I am concerned about National Energy Lab employees are professionals and do incredible work. Yet their account has a $15M shortfall in your request. We need to pay the folks that are doing this work. Can you explain the decision to ask for less money than is needed to do so?

Answer. The current request reflects the program direction savings associated with the termination of the Oil and Gas programs. Overall total NETL Program Direction funding is sufficient to meet the ongoing goals of the Fossil Energy program while providing for continued support of the valued employees of the lab.

Question 8a. The people of Wyoming want to convert our coal to a more valuable resource. We want to generate clean power and produce clean diesel fuel. These options are clearly better than digging up coal and shipping it out on railcars. We dig a lot of it up too, 36 percent of the supply in the United States comes from Wyoming.

What provisions in the Energy Policy act do you think are best suited to helping Wyoming's goal of exporting value-added coal products? Please provide as comprehensive a response as possible.

Answer. Several provisions in the Energy Policy Act of 2005 are well suited to helping Wyoming's goal of exporting value-added coal products. The fiscal year 2008 budget request for the Clean Coal R&D Program is focused on achieving many key goals set in the legislation that would also contribute to achieving Wyoming's goal.

Title IV Subtitle A Section 403 report to Congress transmitted on August 8, 2006, details the goals of the CCPI program.

Title IX Subtitle F Section 962(b)(2)(C) report to Congress transmitted on April 28, 2006, details the goals of the FE R&D program.

Besides these Clean Coal research, development, and demonstration activities being carried out by the Department of Energy, the following EPACT Sections may also support Wyoming's goal of exporting value-added coal products:

- Under EPACT Sections 48A and 48B incentives are related to gasification technologies including co-production facilities that produce both electric power and liquid fuels from coal.
- EPACT Section 1703 authorizes the Department to provide loan guarantees for coal gasification, carbon sequestration, and many other types of projects.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR BINGAMAN

GENERIC CELLULOSE ETHANOL

Question 1. The potential of cellulose ethanol to make a valuable contribution to our energy goals has gotten the attention of many of us in Congress lately. A robust commercial market for cellulose ethanol may achieve many policy objectives, including reduced dependence on oil imports, improved energy security, rural economic development, and reduced greenhouse gas emissions. Given that, we want to be sure that the Department of Energy is working to use the loan guarantee program to support commercialization efforts of companies that have demonstrated a technical and financial readiness to develop a commercial-scale cellulose ethanol project. Can you tell us what the department is doing to specifically support ethanol commercialization through the loan guarantee program?

Answer. Proposals to commercialize cellulosic ethanol fit within the category of renewable energy projects eligible for loan guarantees under Title XVII of EPACT 2005. Even in advance of enactment of the Joint Resolution, Public Law 110-5, which provided $7 million in funding for administrative expenses of the Loan Guarantee Program and the necessary authority to issue loan guarantees, the Department began activities under the Title XVII loan guarantee program. Specifically, on August 8, 2006, the Department issued Guidelines and an initial Solicitation Announcement (Solicitation No. DE-PS01-06LG00001). The deadline for submitting Pre-Applications in response to that solicitation (including for biomass or cellulosic ethanol projects), closed on December 31, 2006. The Guidelines provided that technologies for project proposals must be mature enough to assure dependable commercial operations. These materials and other relevant documents are available at http://www.lgprogram.energy.gov.

Among the more than 100 Pre-Applications received by the December 31, 2006 deadline were a number of biomass and cellulosic ethanol projects. All of the timely filed Pre-Applications are currently under preliminary review. This preliminary review will be followed by invitations to selected entities to submit full Applications. P.L. 110-5 requires that DOE issue final regulations for the loan guarantee program before issuing any loan guarantees, and the Department is actively working on a notice of proposed rulemaking that it intends to issue soon.

Question 2a. The Joint Resolution providing funding for Fiscal Year 2007 contains the required appropriations authorization for DOE's loan guarantee program, and established a $4 billion cap on the program.

Section XVII of EPACT 2005 permits DOE to guarantee up to 80 percent of a project's cost. Yet, language in the Joint Resolution suggests the cap should apply to a project's "total principal amount, any part of which is to be guaranteed." As a point of clarification, does this mean that the entire cost of the project—rather than just the percentage of costs guaranteed by DOE—will count toward the $4 billion cap?

Answer. No. Title XVII of EPACT 2005 limits the amount of debt that can be guaranteed to 80 percent of project costs. P.L. 110-5 sets a $4 billion cap for all guaranteed debt instruments, measured by the "total principal amount, any part of which is to be guaranteed." Thus, the Joint Resolution provides that the $4 billion cap is to be measured by the face amount of the debt instruments that are guaranteed, even if the Department does not guarantee 100% of the debt instruments.

Question 2b. The President's Fiscal Year 2008 budget would provide for $9 billion in potential loan guarantees under Section XVII of EPACT 2005. Again, as a point of clarification, is this $9 billion in addition to the $4 billion provided by the Fiscal Year 2007 Joint Resolution? Or, alternately, does the President's budget request merely constitute an additional $5 billion of loan guarantee authority, presuming enactment of the Joint Resolution?

Answer. The Department anticipates $9 billion in loan guarantees in FY 2008.

Question 3a. I understand there are a number of key steps DOE must take in order to structure a loan guarantee program which results in a workable financial instrument for project developers and, at the same time, a sensible risk management strategy for American taxpayers. The Committee is concerned that the Department take these steps as expeditiously as possible:

Given the Department's August 2006 solicitation for loan guarantee pre-applications, the Committee assumes DOE has taken steps to begin developing guidelines for financial due diligence in its review of these projects. What is the process and timeline by which DOE intends to complete its development of these guidelines?

Answer. The Department is preparing a Notice of Proposed Rulemaking that will propose eligibility criteria and due diligence requirements for the Title XVII loan guarantee program. DOE is working to write and issue that proposal as soon as possible. With the enactment of Public Law 110-5, the Department also is moving forward expeditiously to complete its review of the timely filed Pre-Applications, and to fully implement the loan guarantee program.

Question 3b. Please detail the Department's plans for consulting with members of the financial community and other federal agencies with experience in successfully administering loan guarantee programs.

Answer. The Department has met with other federal agencies and the financial community on several occasions in order to learn from their experiences and gain their insights. This consultation process is ongoing. In addition, the Department is preparing to issue a Notice of Proposed Rulemaking for the Title XVII program, and all members of the public, including the financial community, will have the opportunity to review and comment on that proposal.

Question 3c. One of the key issues in administering this program is development of a methodology for assessing subsidy cost payments from project developers. What steps has the Department taken to date to develop this methodology, in consultation with the Office of Management and Budget? Has DOE performed any analysis of whether prepayment of a subsidy fee may prove a prohibitive factor for any particular technologies or class of pre-applicants?

Answer. The Credit Subsidy Cost constitutes the estimated long-term liability or risk to the Federal government in issuing a loan guarantee, and is calculated on a net present value basis. Prior to entering into any loan guarantee agreements, the Department will perform its own independent calculation of the Credit Subsidy Cost. OMB will review and must approve this estimate.

The amount of equity participation, the percentage of debt guaranteed by the Federal government, the term of the debt, the interest rate on the debt, the strength of off-take and other revenue generating agreements, and the other material aspects of the financial and business structure of the project, are all factors that the Department may consider in computing the Credit Subsidy Costs. Other Federal agencies that issue loan guarantees must account for similar financing considerations in calculating Credit Subsidy Cost. While the wide range of technologies eligible under the Act represent a unique variable in the calculation of the Credit Subsidy Cost for loan guarantees, the Department may be able to employ aspects of those agencies' Credit Subsidy Cost models in developing its own methodology.

The Department has not performed an analysis of whether prepayment of a subsidy fee may prove a prohibitive factor for any particular technologies or class of pre-applicants. However, section 1702(b) of the Energy Policy Act of 2005 requires that the Credit Subsidy Cost be paid in full prior to the issuance of a loan guarantee.

Question 4a. We understand that more than 100 developers submitted responses to the Department's 2006 solicitation for loan guarantee pre-applications.

How many of these projects will DOE be able to fully review given the funding level for administrative expenses included in the Fiscal Year 2007 Joint Resolution?

Answer. The Department received over 100 Pre-Applications by the December 31, 2006 deadline for submission of proposals under the initial Solicitation Announcement (Solicitation No. DE-PS01-06LG00001), issued August 8, 2006. These timely filed Pre-Applications are already under preliminary review. Once all of the preliminary reviews are completed, invitations will be extended to selected entities to submit full Applications. Until such time as the preliminary reviews are completed and the number and complexity of projects receiving an invitation to file a complete Application are known, the Department will not know how many projects it will fully review.

Question 4b. We heard testimony at a recent Committee Biofuels Conference to the effect that it would be wise for the Department to begin the process of evaluating those pre-applications now, so that decisions about advancing to the application stage can be made as expeditiously as possible. Is the Department planning to

move forward with this analysis? What is the time frame in which DOE intends to begin this process?

Answer. On August 8, 2006, the Department issued Guidelines and an initial Solicitation Announcement (Solicitation No. DE-PS01-06LG00001). The initial Solicitation and the Guidelines provided that technologies for project proposals must be mature enough to assure dependable commercial operations. These materials and other relevant documents are available at www.lgprogram.energy.gov.

The timely filed Pre-Applications are currently under preliminary review. This preliminary review will be followed by invitations to selected entities to submit full Applications. With the enactment of Public Law 110-5, the Department is moving forward to review these Pre-Applications; to develop regulations for the program; and to fully implement the loan guarantee program. So, even though P.L. 110-5 prohibits DOE from issuing any loan guarantees until it has promulgated applicable final regulations, P.L. 110-5 does not prohibit DOE from working to evaluate responses to the first solicitation prior to the issuance of those final rules.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR DOMENICI

LOAN GUARANTEES FOR INNOVATIVE TECHNOLOGIES (EPACT TITLE XVII)

Question 1. While your budget says you plan to do $9 billion in loan guarantees for FY 2008, that number simply represents the total face value of loan guarantees the administration chooses to grant. In other words, there is no limitation in EPACT on the total amount of guarantees that could be granted, correct? You could have said you would do $9 billion, right?

Answer. No. You are correct that Title XVII of EPACT does not contain any limitations on the total amount of loan guarantees that may be issued under specific loan volume limitations provided in appropriations acts. However, under the Federal Credit Reform Act of 1990, authority must be provided for in an appropriations act to enter into new loan guarantee commitments.

Question 2. Furthermore, regardless of what that total face value amount is, you do not have to seek appropriation of it. Under EPACT and the Federal Credit Reform Act, only the "cost" or risk factor," if you will needs to be set aside in the treasury in the event of default. Under EPACT, as implemented by your program, the borrower can pay that amount into the treasury, so no appropriation is required for that either, correct?

Answer. The Federal Credit Reform Act of 1990, section 504, is clear that for any discretionary federal credit program new loan guaranteecommitments may not be made unless authority has been provided in an appropriations act. EPACT and FCRA together mean that DOE is authorized to carry out a loan guarantee program, but that DOE may not actually issue guarantees until it receives new budget authority or is otherwise provided authority to make guarantees in an appropriations act.

Question 3. Lastly, EPACT also directs you to collect administrative costs from the borrowers to offset any costs of running the program, so there's no cost to the treasury there either because those will be offsetting receipts, isn't that right?

Answer. The Department will incur administrative expenses as part of its review of Pre-Applications and Applications. EPACT section 1702(h) requires that the Department "charge and collect fees for guarantees . . . sufficient to cover applicable administrative expenses." P.L. 110-5 appropriates $7 million in FY 2007 for administrative expenses. The Department anticipates addressing the subject of fees in its incoming notice of proposed rulemaking.

The appropriations language in P.L. 110-5 and proposed in the Administration's FY 2008 Budget for administrative expenses reflects the offsetting nature of the 1702(h) collections. This provides the Department the necessary authority to carry out the Loan Guarantee Program, while also reflecting that the costs will ultimately be borne by the Applicants/Borrowers and not the general Treasury.

Question 4. The point is, Mr. Secretary, there is no appropriation required of the total face value of the loan guarantees, nor has Congress set any limit on how many of these you can grant except at your request. Isn't that your understanding?

Answer. EPACT and FCRA together mean that DOE is authorized to carry out a loan guarantee program, but that DOE may not actually issue guarantees until it receives new budget authority or is otherwise provided authority to make guarantees in an appropriations act. DOE previously conveyed this to this Committee and to the Government Accountability Office. For example, on May 1, 2006, DOE Under Secretary David K. Garman testified before this Committee that DOE would need an authorization, such as a loan volume limitation, in an appropriations act before DOE would be able to issue loan guarantees under the Title XVII program.

Question 5. I understand that you have over 160 pre-applications under review for this program to get these new technologies in the marketplace. Can you commit to me that you'll move as quickly as possible to get this program off the drawing board and into action? Can we be confident that the Department will begin reviewing pre-applications in the very near future?

Answer. I am committed to moving the program forward expeditiously. The Department received over 100 Pre-Applications by the December 31, 2006 deadline for submissions under the Department's Solicitation Announcement (Solicitation No. DE-PS01-06LG00001), issued August 8, 2006. These timely filed Pre-Applications are already under preliminary review. Once all of the preliminary reviews are completed, invitations will be extended to selected entities to submit full Applications. The Department also is preparing to issue a Notice of Proposed Rulemaking (NOPR) for this program.

NATURAL GAS AND OIL TECHNOLOGY PROGRAMS

Question 1. Consistent with the President's FY2006 and FY2007 budgets, you again propose the elimination of the natural gas and oil technology programs within the Office of Fossil Energy for FY2008.

You state in the FY2008 budget that the Natural Gas Technology Program was rated "ineffective". Will you please explain how you came to this conclusion?

Answer. In 2003, the Natural Gas Technologies Program received an overall PART score of 44%. The Program and Assessment Rating Tool (PART) is an OMB designed tool to rate programs. PART consists of four sections: 1. Program Purpose and Design, 2. Strategic Planning, 3. Program Management, 4. Program Results. Each section consists of a number of questions most of which are scored "yes" or "no". Scores from the four sections are weighted (20%, 10%, 20% and 50%, respectively) to obtain an overall score. Programs with PART scores less than 50 out of 100 are rated "ineffective." The program was rated "Ineffective" in the PART analysis based primarily on not demonstrating clear results of the research effort. Full PART reassessments are conducted based on the level of new information available. The Natural Gas Technology Program has not indicated evidence of a significant change in performance and has not been selected for a reassessment.

Question 3. Consistent with the President's FY2006 and FY2007 budgets, you again propose the elimination of the natural gas and oil technology programs within the Office of Fossil Energy for FY2008.

What role, if any, do you believe DOE should have in advancing technology which promotes the more efficient exploration, production and transportation of natural gas and oil?

Answer. Oil and gas are mature industries and both have every incentive, particularly at today's prices, to enhance production and continue research and development of technologies on their own. There is no need for taxpayers to subsidize oil companies in these efforts. The Administration's Research and Development Investment Criteria direct programs to avoid duplicating research in areas that are receiving funding from the private sector, especially for evolutionary advances and incremental improvements.

The 2008 Budget proposes to expand access to oil and gas resources, streamline permitting processes, and make the R&D investment tax credit permanent. These changes will leverage private sector ingenuity and are preferred ways to increase domestic production of oil and gas rather than Federally funded R&D.

Question 4. Consistent with the President's FY2006 and FY2007 budgets, you again propose the elimination of the natural gas and oil technology programs within the Office of Fossil Energy for FY2008.

Is your decision to terminate these programs a function of budget constraints, program ineffectiveness, other priorities, or a combination of the three? Please explain.

Answer. Budget discipline necessitated close scrutiny of all Fossil Energy programs, using strict guidelines to determine their effectiveness and compare them to other programs offering more clearly demonstrated and substantial benefits. The Program Assessment Rating Tool (PART) was developed by OMB to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. A PART assessment of the Natural Gas R&D program was conducted for the FY 2004 Budget and a reassessment was conducted for the FY 2005 Budget. The program was rated "Ineffective" in the PART analysis based primarily on not demonstrating clear results of the research effort.

Question 3. Please explain your rationale for terminating this program.

Answer. The Administration strongly supports research and development that will increase the Nation's energy independence, and is proposing to make the R&D investment tax credit permanent. The FY 2008 Budget includes initiatives for hydrogen fuel, biofuels, and solar photovoltaics to help displace future demand for oil and natural gas. The Administration also supports removing unnecessary barriers to developing existing reserves of oil and gas including, for instance, the environmentally responsible exploration and development of reserves in Alaska.

The oil and gas R&D programs focus on technologies that can be commercialized quickly. Oil companies have strong incentives to figure out ways to get the oil out of the ground cheaply and safely. They have shown, along with the oil services industry, remarkable engineering prowess, including when it comes to offshore engineering. There is no need for taxpayers to subsidize oil companies in these efforts.

BIOFUELS/LOAN GUARANTEES

Question 1. I am interested in whether the Department is working to use the loan guarantee program to support commercialization efforts of cellulose ethanol projects.

What is the Department doing to specifically support cellulose ethanol commercialization through the loan guarantee program?

Answer. Proposals to commercialize cellulosic ethanol fit within the category of renewable energy projects eligible for loan guarantees under Title XVII of EPACT 2005. Even in advance of enactment of the Joint Resolution, Public Law 110-5, which provided $7 million in funding for administrative expenses of the Loan Guarantee Program, the Department began activities under the Title XVII loan guarantee program. Specifically, on August 8, 2006, the Department issued Guidelines and an initial Solicitation Announcement (Solicitation No. DE-PS01-06LG00001). The deadline for submitting Pre-Applications in response to that solicitation (including for biomass or cellulosic ethanol projects), closed on December 31, 2006. In addition, the Guidelines provided that technologies for project proposals must be mature enough to assure dependable commercial operations. These materials and other relevant documents are available at http://www.lgprogram.energy.gov.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR CANTWELL

Question 20. Secretary Bodman, you testified that the Administration does not believe that the oil and gas industry need incentives to expand drilling when world prices are so high. Could you please say whether you would recommend the President sign legislation repealing expensing of exploration and production costs and if you recommend not signing such a bill, please explain why and how much you estimate this tax provision current costs the federal treasury.

Answer. While I would have to see the details of particular legislation before commenting on it, I am not likely to make recommendations on issues that involve tax policy, which is the jurisdiction of the Department of Treasury.

Question 21. Secretary Bodman, you testified that the Administration does not believe that the oil and gas industry need incentives to drill when world prices are so high. Could you please say whether you would recommend the President sign legislation repealing excess of percentage over cost depletion? If you recommend not signing such legislation, please explain why and how much you estimate this tax provision current costs the federal treasury.

Answer. While I would have to see the details of particular legislation before commenting on it, I am not likely to make recommendations on issues that involve tax policy, which is the jurisdiction of the Department of Treasury.

Question 22. Secretary Bodman, you testified that the Administration does not believe that the oil and gas industry need incentives to drill when world prices are so high. Could you please say whether you would recommend the President sign legislation repealing tax credits for enhanced oil recovery costs? If you recommend not signing such legislation, please explain why and how much you estimate this tax provision current costs the federal treasury.

Answer. While I would have to see the details of particular legislation before commenting on it, I am not likely to make recommendations on issues that involve tax policy, which is the jurisdiction of the Department of Treasury.

Question 23. Secretary Bodman, you testified that the Administration does not believe that the oil and gas industry need incentives to drill when world prices are so high. Could you please say whether you would recommend the President sign legislation repealing tax credits in EPACT 2005 including the election to expense certain refineries, treatment of natural gas distribution lines as 15-year property, treatment of natural gas gathering lines as 7-year property, and the new rule for determining small refineries? If you recommend not signing such legislation, please

explain why and how much you estimate this tax provision current costs the federal treasury.

Answer. Yes, I would recommend the repeal of some EPACT tax incentives to reduce the revenue losses to the Federal treasury. For example, the Administration's FY2008 budget recommends the repeal of the EPACT provision for an acceleration of depreciation of natural gas distribution lines. Treasury's estimated revenue increase for the proposal is $906 million for FY 2008—2017. The FY 2008 Budget also proposes to increase the amortization period from two to five years for geological and geophysical expenditures (G&G) incurred by independent oil and gas producers in connection with all oil and gas production in the United States. The Administration's proposal recognizes that high energy rices provide incentives for investment in exploration and that additional p incentives in the form of accelerated amortization of G&G are not necessary. In addition, the Budget proposal provides consistent treatment of G&G for all oil and gas producers while retaining the simplification benefits provided by EPACT. The estimated revenue increase for the proposal is $582 million for FY 2008—2017.

I would add, however, that I support certain EPACT provisions that provide significant tax simplification. For example, EPACT clarified the tax treatment of natural gas gathering lines, resolving an issue that had resulted in a substantial amount of litigation between IRS and taxpayers and providing equal treatment of such gathering lines among different types of owners.

Although I do not have an estimate of the rest of the EPACT tax incentives, the Joint Committee on Taxation prepared such estimates in connection with the EPACT conference agreement. Those estimates can be found in the Joint Committee publication JCX-59-05.

Question 24. Secretary Bodman, you testified that the Administration does not believe that the oil and gas industry need incentives to drill when world prices are so high. Could you please say whether you would recommend the President sign legislation adjusting the LIFO and FIFO accounting rules for the big 5 oil companies?

Answer. The Administration has opposed proposed modifications of inventory accounting rules for certain large oil companies. There is no basis in sound tax accounting for requiring the adjusting of LIFO and FIFO accounting rules for only 5 companies. Thus, it would be inappropriate to single out 5 large oil companies for inventory tax treatment that would differ from that allowed other firms in the oil industry or other industries.

Question 28. Secretary Bodman, as you know China's energy demands are rising at an incredible pace. Could you please describe any and all programs the Department is conducting with the Chinese government, or within China, besides the Asia Pacific Partnership?

Answer. Driven by economic growth, China's demand for energy has been rising rapidly. This rapid growth is expected to continue over the next decades. To help alleviate pressure on the world oil market, the Department of Energy has actively engaged with China on strategies for diversifying its energy supply. Our cooperation with China is focusing on increasing China's use of clean and more efficient energy to lower its impact on energy markets and the environment. Our energy programs in China are described below.

Fossil Energy Programs in China: The major area of cooperation on fossil energy is the Protocol between DOE and China's Ministry of Science and Technology (MOST), signed in 2000, which is a bilateral agreement that promotes scientific and technological cooperation and exchanges in the field of fossil energy. These exchanges will help to reduce the adverse environmental impacts of power production from coal in China, provide commercial opportunities for U.S. businesses, and acquire scientific and technical information of interest to DOE. DOE's Office of Fossil Energy spent an estimated $430,000 on activities under the China Protocol in 2006. DOE has also engaged in forums and information exchanges through the U.S. China Oil and Gas Industry Forum and the U.S./China Energy and Environmental Technology Center.

Energy Efficiency and Renewable Energy Programs in China: On December 15, 2006, the DOE and MOST renewed an energy efficiency and renewable energy Protocol, which started in 1995, for cooperation on solar, wind, and biomass and energy efficiency technologies. In the area of energy efficiency, current activities include evaluating gaps in China's energy efficiency policies and promoting dialogue and collaboration on energy efficiency measures. The Department is working to promote energy efficiency through industrial efficiency assessments that will promote the use of advanced efficiency technology and reduce air pollution. This will also increase the market for U.S. products. China's industrial sector accounts for 60% of its total energy consumption, so this is a major target of opportunity.

The building sector is another key area for energy conservation. The Agenda 21 Building in Beijing, completed in 2004 through a cooperative effort between DOE and MOST, obtained a Leadership in Energy and Environmental Design (LEED) Gold rating and demonstrated the potential contribution to energy conservation these technologies could make. The Department's support of the Agenda 21 Building will encourage private sector participation by featuring state-of-the-art U.S. building technology and serving as a training and exhibition center for American products.

The Department also supports projects and programs in China in the area of renewable energy, focusing on biofuels, solar, and wind technologies. DOE is working with its Chinese counterparts to exchange information on advances in technologies, specifically helping the Chinese map and evaluate feedstock resources for biofuels and approaches to expanding the use of flex fuel vehicles to reduce the amount of oil that China will need for its growing automobile fleet. The Office of Energy Efficiency and Renewable Energy (EERE) spent approximately $140,000 on programs with China in 2006.

The U.S.-China Energy Policy Dialogue: Established in May 2004, the Dialogue aims to improve mutual understanding of our respective energy policies; to offer relevant U.S. experiences to help Chinese policy makers improve the legal and regulatory framework for energy investment; and to mitigate the environmental affects of China's rising fossil energy consumption. The second and most recent Dialogue was held in September 2006, in China.

The U.S.-China Strategic Economic Dialogue: DOE actively participates in this Dialogue, which was established in 2006 and is led by the Treasury Department. I co-chaired a session on "Energy and Environment" with EPA Administrator Stephen Johnson and addressed various aspects of the linkage between the use of energy and natural resources and their impact on the environment, and sustainable economic development.

*Peaceful Uses of Nuclear Technology (PUNT) Cooperation:*Established in 1998 by the U.S. and Chinese governments, the PUNT cooperation aims to positively influence China on nuclear nonproliferation policy and to promote various areas of nuclear energy research and development cooperation. The areas of cooperation are the control of exports of nuclear materials, equipment and technologies; nuclear material control and accounting; physical protection of nuclear materials and nuclear facilities; nuclear reactor power plant safety; and nuclear safeguards technology development.

DOE also cooperates with China in a number of multilateral energy activities including:

FutureGen: The FutureGen project, announced by President Bush in 2003, is a $950 million multilateral initiative to build a near-zero atmospheric emissions coal-fired power plant. The China Huaneng Group is already part of the FutureGen Industry Alliance, which is a consortium of coal producers and users who partner with DOE on the FutureGen project. In December 2006, the Chinese government formally expressed its willingness to join other interested foreign governments on the U.S.-led FutureGen Government Steering Committee, which will provide recommendations to the Alliance on development of the FutureGen project.

Carbon Sequestration Leadership Forum (CSLF): Another potentially transforming technology is the focus of the Department's Carbon Sequestration Leadership Forum (CSLF). Given the potential technical contributions and the importance of future markets, the Chinese have been important partners in this initiative. China has been an active member of the CSLF since its inception in 2003.

International Partnership for a Hydrogen Economy (IPHE): The U.S. and China are also working together through the International Partnership for a Hydrogen Economy (IPHE), which President Bush envisages as helping to bring hydrogen-based vehicles to market worldwide. China hosted the IPHE Steering Committee meeting in May 2004 in Beijing and the IPHE Implementation-Liaison Committee meeting in January 2006 in Shanghai.

GenIV: In November 2006, China, together with the Russian Federation became a member of the Generation IV International Forum (GIF), composed of the energy ministries and agencies of 11 countries and the European Atomic Energy Community. The Forum is a framework for international research and development collaboration for the next generation of nuclear systems that satisfactorily address the GIF's criteria of safety, economy, sustainability, proliferation resistance, and physical protection. China has announced its intention to accede to the multilateral Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems (signed February 28, 2005), joining the governments of Canada, France, Japan, the Republic of Korea, Switzerland, the United Kingdom, and the United States.

ITER: President Bush announced on January 30, 2003, that the U.S. was joining the negotiations for the International Thermal Nuclear Experimental Reactor, now referred to as ITER, whose mission is to demonstrate the scientific and technological feasibility of clean fusion energy. In June 2005, the ITER parties, namely China, the European Union, Japan, the Republic of Korea, Russia and the U.S., agreed to build the ITER facility in Cadarache, France, the main research center of the French Atomic Energy Commission. India joined the project in December 2005, and the ITER Agreement was signed by the seven ITER parties on November 21, 2006. The U.S. and China, as non-host partners, will each participate in the construction phase at the level of 9.09 percent.

RESPONSE OF SECRETARY BODMAN TO QUESTION FROM SENATOR SANDERS

LOAN GUARANTEES

Question 2. The budget proposes to allow the Department to support $4 billion in proposed loan guarantees for nuclear and coal plants in FY2008, compared to a $5 billion cap for biofuels, electricity transmission and the vast array of renewable energies. Your Department set these amounts, but according to your own budget request, you have yet to evaluate the financial risks for US taxpayers. A 2003 estimate by the Congressional Budget Office concluded the risk of loan default for a new nuclear plant would be "well above 50 percent." How did the Department make its decision on the total amount and allocations for loan guarantees without having evaluated the financial risks?

Answer. DOE anticipates $9 billion in loan guarantees in FY 2008. The sub-limits in the Budget are reasonable goals for the allocation of authority among eligible projects. That being said, there is no magic as to how the sub limits were set. As the Budget itself states, "[p] recisely how any authorized would be allocated . . . ultimately would depend on the merits and benefits of particular project proposals and their compliance with statutory and regulatory requirements."

RESPONSE OF SECRETARY BODMAN TO QUESTION FROM SENATOR SESSIONS

Question 4. Many major U.S. industries are currently under significant competitive pressure from offshore producers that have access to lower cost supplies and relaxed environmental regulations. Will investments in energy efficiency [and] carbon reduction R&D help support those industries and encourage them to stay here in the U.S.?

Answer. Energy efficiency provides a cost-effective option to save energy, reduce greenhouse gas emissions, and help with companies' bottom lines. One example is the Save Energy Now campaign I announced in late 2005. Through DOE's Industrial Technologies Program, Energy Saving Teams visited 200 of the most energy-intensive manufacturing facilities in the country over the past 12 months. Working with plant personnel, the teams identified savings opportunities that typically amounted to 5 to 15 percent of a plant's total energy use, with an average potential savings of about $2.5 million per plant if our recommendations are implemented. In total, these assessments identified opportunities to save over 50 trillion Btu—roughly equivalent to the natural gas used in 700,000 American homes—and close to $500 million per year in energy costs (including electricity). We did not calculate the plants' investment necessary to achieve these energy cost savings, but in many cases, our recommendations are low-cost or no-cost process improvements. These energy savings equate to reducing carbon dioxide emissions by 3.3 million metric tons annually. We are expanding the program to cover another 250 plants in fiscal year 2007. In addition, the Industrial Technologies Program promotes R&D for advanced, energy efficient manufacturing process technologies that will improve efficiency even more. These types of programs can help enhance our energy security, reduce greenhouse gas emissions, and keep American industry competitive.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR SALAZAR

TITLE XVII LOAN GUARANTEES

Question 8. Mr. Secretary, The Energy Policy Act of 2005 authorized loan guarantees for a variety of new clean energy technologies. It is absolutely critical that the Department finally establish an Office of Loan Guarantees. I am glad to see that you propose to issue $9 billion in loans, but I remain concerned with the Department's lack of progress establishing the loan guarantee program. Please provide me and the Members of the Committee with a written update and statement of your plan to implement Congress's intent in Title XVII of EPAct 2005.

Answer. In May 2006, the Department requested Congressional approval for an appropriations transfer of $2.7 million to fund start-up of a DOE Loan Guarantee Office. The Senate approved this request but the House of Representatives rejected it. As a result, until the enactment of P.L. 110-5 on February 15, 2007, which provided for funds and authority to fully implement the Title XVII program, DOE's ability to carry the program forward was extremely limited. The Department did issue Guidelines and an initial Solicitation Announcement on August 8, 2006, and is currently reviewing the pre-applications received under that solicitation. Now that it has been provided necessary funding and legal authority, DOE intends to move forward expeditiously to implement this program.

Among other things, the Department is preparing to issue a Notice of Proposed Rulemaking for the program, and will move forward expeditiously to complete its review of the completed, timely filed, Pre-Applications submitted in response to the first solicitation.

TITLE XVII LOAN GUARANTEES

Question 9. I am particularly anxious to learn what solicitations for project proposals the Department will issue for Integrated Gasification Combined Cycle (IGCC) demonstration project in the western U.S. Will you please update me on the Department's plans in that regard?

Answer. The Clean Coal Power Initiative (CCPI) is the primary vehicle used by the Department of Energy to fund demonstration scale advanced coal technology projects such as IGCC. In FY 2008 CCPI will complete the Round 3 solicitation, proposal evaluations, and project selections to assemble the initial portfolio of advanced technology systems that capture carbon dioxide for sequestration and beneficial reuse.

RESPONSE OF SECRETARY BODMAN TO QUESTION FROM SENATOR MURKOWSKI

ALASKA ENERGY OFFICE

Question 5. DOE for the past six years has operated an Alaska Energy Office. It has never received more than $7 million annually, but it has worked on some exciting projects: how to supply rural villages with innovative power in places where diesel-generated power costs up to 70 cents per kilowatt (fuel cells). How to harness coal while sequestering carbon and enhancing oil recovery from oil fields. How to turn coal into nitrogen and other elements through gasification. How to get heavy oil out of the ground. How to develop gas hydrates. How, most recently, to get power to the citizens of Southcentral Alaska now that existing supplies of natural gas are becoming more scarce and expensive. I'm sorry to see your decision not to return the office again for the coming year. Could you tell me any substantive reason why you made that decision or was it purely budget driven?

Answer. Consistent with the FY 2006 and FY 2007 Budgets, the Oil and Natural Gas Technology programs are being terminated in FY 2008. Budget discipline necessitated close scrutiny of all Fossil Energy programs, using strict guidelines to determine their effectiveness and to compare them to other programs offering more clearly demonstrated and substantial benefits. The Program Assessment Rating Tool (PART) was developed by OMB to provide a standardized way to assess the effectiveness of the Federal Government's portfolio of programs. The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. A PART assessment of the Natural Gas R&D program was conducted for the FY 2004 Budget and a reassessment was conducted for the FY 2005 Budget. The program was rated "Ineffective" in the PART analysis based primarily on not demonstrating clear results of the research effort.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR WYDEN

Question 5. You have also apparently decided that part of your Department's mission is to help factories in China become more energy efficient by helping them to perform energy assessments. Please provide a detailed explanation of exactly what your Department is doing in China with regard to each program within the Department, e.g. Efficiency and Renewable Energy, Fossil Energy, etc., and the funding that will be used for these activities.

Answer. Driven by economic growth, China's demand for energy has been rising rapidly. This rapid growth is expected to continue over the next decades. To help alleviate pressure on the world oil market, the Department of Energy has actively engaged with China on strategies for diversifying its energy supply. Our cooperation

with China is focusing on increasing China's use of clean and more efficient energy to lower its impact on energy markets and the environment. Our energy programs in China are described below.

Fossil Energy Programs in China: There are major area of cooperation on fossil energyis the Protocol between DOE and China's Ministry of Science and Technology (MOST), signed in 2000, which is a bilateral agreement that promotes scientific and technological cooperation and exchanges in the field of fossil energy. These exchanges will help to reduce the adverse environmental impacts of power production from coal in China, provide commercial opportunities for U.S. businesses, and acquire scientific and technical information of interest to DOE. DOE's Office of Fossil Energy spent an estimated $430,000 on activities under the China Protocol in 2006. DOE has also engaged in forums and information exchanges through the U.S. China Oil and Gas Industry Forum and the U.S./China Energy and Environmental Technology Center.

Energy Efficiency and Renewable Energy Programs in China: On December 15, 2006 the DOE and MOST renewed an energy efficiency and renewable energy Protocol, which started in 1995, for cooperation on solar, wind, and biomass and energy efficiency technologies. In the area of energy efficiency, current activities include evaluating gaps in China's energy efficiency policies and promoting dialogue and collaboration on energy efficiency measures. The Department is working to promote energy efficiency through industrial efficiency assessments that will promote the use of advanced efficiency technology and reduce air pollution. This will also increase the market for U.S. products. China's industrial sector accounts for 60% of its total energy consumption, so this is a major target of opportunity.

The building sector is another key area for energy conservation. The Agenda 21 Building in Beijing, completed in 2004 through a cooperative effort between DOE and MOST, obtained a Leadership in Energy and Environmental Design (LEED) Gold rating and demonstrated the potential contribution to energy conservation these technologies could make. The Department's support of the Agenda 21 Building will encourage private sector participation by featuring state-of-the-art U.S. building technology and serving as a training and exhibition center for American products.

The Department also supports projects and programs in China in the area of renewable energy, focusing on biofuels, solar, and wind technologies. DOE is working with its Chinese counterparts to exchange information on advances in technologies specifically helping the Chinese map and evaluate feedstock resources for biofuels and approaches to expanding the use of flex fuel vehicles to reduce the amount of oil that China will need for its growing automobile fleet. The Office of Energy Efficiency and Renewable Energy (EERE) spent approximately $140,000 on programs with China in 2006.

The U.S.-China Energy Policy Dialogue: Established in May 2004, the Dialogue aims to improve mutual understanding of our respective energy policies; to offer relevant U.S. experiences to help Chinese policy makers improve the legal and regulatory framework for energy investment; and to mitigate the environmental affects of China's rising fossil energy consumption. The second and most recent Dialogue was held in September 2006, in China.

The U.S.-China Strategic Economic Dialogue: DOE actively participates in this Dialogue, which was established in 2006 and is led by the Treasury Department. I co-chaired a session on "Energy and Environment" with EPA Administrator Stephen Johnson and addressed various aspects of the linkage between the use of energy and natural resources and their impact on the environment, and sustainable economic development.

Peaceful Uses of Nuclear Technology (PUNT) Cooperation: Established in 1998 by the U.S. and Chinese governments, the PUNT cooperation aims to positively influence China on nuclear nonproliferation policy and to promote various areas of nuclear energy research and development cooperation. The areas of cooperation are the control of exports of nuclear materials, equipment and technologies; nuclear material control and accounting; physical protection of nuclear materials and nuclear facilities; nuclear reactor power plant safety; and nuclear safeguards technology development.

DOE also cooperates with China in a number of multilateral energy activities including:

FutureGen: The FutureGen project, announced by President Bush in 2003, is a $950 million multilateral initiative to build a near-zero atmospheric emissions coal-fired power plant. The China Huaneng Group is already part of the FutureGen Industry Alliance, which is a consortium of coal producers and users who partner with DOE on the FutureGen project. In December 2006, the Chinese government formally expressed its willingness to join other interested foreign governments on the

U.S.-led FutureGen Government Steering Committee, which will provide recommendations to the Alliance on development of the FutureGen project.

Carbon Sequestration Leadership Forum (CSLF): Another potentially transforming technology is the focus of the Department's Carbon Sequestration Leadership Forum (CSLF). Given the potential technical contributions and the importance of future markets, the Chinese have been important partners in this initiative. China has been an active member of the CSLF since its inception in 2003.

International Partnership for a Hydrogen Economy (IPHE): The U.S. and China are also working together through the International Partnership for a Hydrogen Economy (IPHE), which President Bush envisages as helping to bring hydrogen-based vehicles to market worldwide. China hosted the IPHE Steering Committee meeting in May 2004 in Beijing and the IPHE Implementation-Liaison Committee meeting in January 2006 in Shanghai.

GenIV: In November 2006, China, together with the Russian Federation, became a member of the Generation IV International Forum (GIF), composed of the energy ministries and agencies of 11 countries and the European Atomic Energy Community. The Forum is a framework for international research and development collaboration for the next generation of nuclear systems that satisfactorily address the GIF's criteria of safety, economy, sustainability, proliferation resistance, and physical protection. China has announced its intention to accede to the multilateral Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems (signed February 28, 2005), joining the governments of Canada, France, Japan, the Republic of Korea, Switzerland, the United Kingdom, and the United States.

ITER: President Bush announced on January 30, 2003, that the U.S. was joining the negotiations for the International Thermal Nuclear Experimental Reactor, now referred to as ITER, whose mission is to demonstrate the scientific and technological feasibility of clean fusion energy. In June 2005, the ITER parties, namely China, the European Union, Japan, the Republic of Korea, Russia and the U.S., agreed to build the ITER facility in Cadarache, France, the main research center of the French Atomic Energy Commission. India joined the project in December 2005, and the ITER Agreement was signed by the seven ITER parties on November 21, 2006. The U.S. and China, as non-host partners, will each participate in the construction phase at the level of 9.09 percent.

Asia-Pacific Partnership (APP) for Clean Development and Climate: APP is an effort to accelerate the development and deployment of clean energy technologies. Founding partners Australia, China, India, Japan, Republic of Korea, and the United States have agreed to work together and with private sector partners to meet goals for energy security, national air pollution reduction, and climate change in ways that promote sustainable economic growth and poverty reduction. The Partnership will focus on expanding investment and trade in cleaner energy technologies, goods and services in key market sectors. The Partners have approved eight public-private sector task forces: Aluminum, Buildings and Appliances, Cement, Cleaner Use of Fossil Energy, Coal Mining, Power Generation and Transmission, Renewable Energy and Distributed Generation, and Steel. China has been actively engaged in the task forces and hosted two task force meetings last year (Power Generation and Transmission in Beijing and Cement in Xian).

ULTRA-DEEPWATER NATURAL GAS RESEARCH PROGRAM

Question 8. Mr. Secretary, a last minute provision tucked into the Energy Policy Act of 2005 set aside $50 million a year in mineral royalties and $100 million a year in authorized appropriations for an industry research consortium to help the oil and gas industry with new exploration methods for ultra-deepwater gas. The DOE budget proposes to repeal this program and zeroing it out in your 2008 budget. Why does the Administration believe that this program should be repealed?

Answer. The Administration strongly supports research and development that will increase the Nation's energy independence, and is proposing to make the R&D investment tax credit permanent. The 2008 Budget includes initiatives for hydrogen fuel, biofuels, and solar photovoltaics to help displace future demand for oil and natural gas. The Administration also supports removing unnecessary barriers to developing existing reserves of oil and gas including, for instance, the environmentally responsible exploration and development of reserves in Alaska.

The oil and gas R&D programs focus on technologies that can be commercialized quickly. Oil companies have strong incentives to figure out ways to get the oil out of the ground cheaply and safely. They have shown, along with the oil services industry, remarkable engineering prowess, including when it comes to offshore engineering. There is no need for taxpayers to subsidize oil companies in these efforts.

RESPONSES OF SECRETARY BODMAN TO QUESTIONS FROM SENATOR THOMAS

ROCKY MOUNTAIN OILFIELD TESTING CENTER

Question 3a. Our ability to produce energy here at home is reliant upon advances in technology. Increasing responsible domestic production lowers prices and increases our security. The Rocky Mountain Oilfield Testing Center is located in Wyoming. It's not a private company. It's not a University or a non-profit organization. It is the Department of Energy that owns it, runs it, and uses it to advance technologies. Yet I have to seek an earmark every year to run a facility that belongs to DOE.

Why do you not request money for the rocky mountain oilfield testing center in your budget?

Answer. DOE does request funding for the Rocky Mountain Oilfield Test Center (RMOTC) annually in the budget process. The RMOTC budget request is included with the budget for operation of Naval Petroleum Reserve No. 3, which is part of the larger Naval Petroleum and Oil Shale Reserve (NPOSR) request. The past three Congressional Budget Requests are as follows:

[Dollars in Thousands]

	FY 2006 Cong. Request	FY 2007 Cong. Request	FY 2008 Cong. Request
RMOTC/NPR-3	9,004	10,258	10,110
Other NPR	9,496	8,552	7,191
Total NPOSR	18,500	18,810	17,301

Question 3b. Why does the money generated from the sale of oil produced at RMOTC go to the Federal Treasury?

Answer. Proceeds from the sale of hydrocarbons are deposited into the U.S. Treasury as mandated by law. Section 7432 of the Naval Petroleum Reserves Production Act of 1976 [Public Law 94-258] established a special account for the deposit of all proceeds realized from the sale of the U.S. share of production. For three years Congress made appropriations for the Naval Petroleum Reserves out of this special account. In 1979, Public Law 96-137 abolished the Naval Petroleum Reserves special account and specified that all monies accruing to the United States after December 12, 1979, from the Naval Petroleum Reserves shall be conveyed to the U.S. Treasury as miscellaneous receipts. This law is still in effect and revenues continue to be deposited into the miscellaneous receipts account.

Question 3c. Do you support giving that money back to RMOTC to reinvest in the important work they do?

Answer. The FY 2008 President's Budget reflects the Administration's policy for RMOTC and NPR 3. The 2008 Budget doesn't propose any change in the use of receipts from the sale of oil and gas produced at NPR 3.

Question 4. Section 413 of the Energy Policy Act authorized a federal cost share to demonstrate IGCC in the west. The west is experiencing enormous demand growth in its electricity sector. Wyoming is ready to help meet those needs by building clean coal power plants. We ought to pursue clean coal instead of LNG import terminals in highly populated areas. The people who live on our coasts do not want LNG terminal and increasing imports of natural gas is terrifically harmful to our nation's energy security. Why doesn't the budget request seek funding for section 413 implementation?

Answer. The Clean Coal Power Initiative (CCPI) is the primary vehicle used by the Department of Energy to fund demonstration scale advanced coal technology projects such as the IGCC demonstration authorized under section 413 of EPACT 2005. In FY 2008 CCPI will complete the Round 3 solicitation, proposal evaluations, and project selections to assemble the initial portfolio of advanced technology systems that capture carbon dioxide for sequestration and beneficial reuse.

Question 8b. The people of Wyoming want to convert our coal to a more valuable resource. We want to generate clean power and produce clean diesel fuel. These options are clearly better than digging up coal and shipping it out on railcars. We dig a lot of it up too, 36 percent of the supply in the United States comes from Wyoming. How much money is requested for these things in your 2008 budget?

Answer. The fiscal year 2008 budget request for the Clean Coal R&D Program is focused on achieving many key goals that would also contribute to achieving Wyoming's goal.

DOE's request for 2008 includes $448 million for clean coal research, development, and demonstration. Of that:

- $73 million is for CCPI,
- $108 million is for FuturGen,
- $246 million is for coal R&D in the Fuels and Power Systems program, and
- $21 million is for coal R&D by federal researchers within the Fossil Energy R&D Program Direction line.

Title IV Subtitle A Section 403 report to Congress transmitted on August 8, 2006, details the goals of the CCPI program.

Title IX Subtitle F Section 962(b)(2)(C) report to Congress transmitted on April 28, 2006, details the goals of the FE R&D program.

Besides these Clean Coal research, development, and demonstration activities being carried out by the Department of Energy, the following EPACT Sections may also support Wyoming's goal of exporting value-added coal products:

- Under EPACT Sections 48A and 48B investment tax credits are authorized for advanced coal technologies, which could include gasification technology, co-production facilities that produce both electric power, and liquid fuels from coal. $1 billion in investment tax credits were awarded in 2007 under this mandatory program, and the Department expects that the Department of Treasury will award the remaining $650 million in 2008.
- EPACT Section 1703 authorizes the Department to provide loan guarantees for coal gasification, carbon sequestration, and many other types of projects. The 2008 budget request includes $8.4 million to operate a Loan Guarantee Office. The Department anticipates $9 billion in loan guarantees in FY 2008.

Question 8c. What is DOE doing to encourage growth of interstate pipeline and electrical infrastructure? Please provide as comprehensive response as possible.

Answer. In response to the Energy Policy Act of 2005, the Department of Energy (DOE) is working cooperatively with other Federal and state agencies, local governments, and industry to expedite the permitting of interstate natural gas pipelines. Section 372(b) of the Energy Policy Act of 2005 (EPACT) requires the signatories to a May 2002 Interagency Agreement to submit to Congress a report on the actions Federal agencies are taking with respect to permitting activities with interstate natural gas pipelines. The purpose of the May 2002 Interagency Agreement is to streamline and otherwise improve the regulatory oversight of the permitting activities of natural gas pipelines. The draft report is titled, "How the Federal agencies are Incorporating and Implementing the Provisions of the May 2002 Interagency Agreement on Early Coordination of Required Environmental and Historic Preservation Reviews Conducted in Conjunction with the Issuance of Authorizations to Construct and Operate Interstate Natural Gas Pipelines Certificated by the Federal Energy Regulatory Commission." The report was drafted by the Department's Office of Fossil Energy in cooperation with the Depirrtment of Army, the Department of Agriculture, the Department of Commerce, the Department of the Interior, the Department of Transportation, the Advisory Council on Historic Preservation, the Federal Energy Regulatory Commission, the Council on Environmental Quality, and the Environmental Protection Agency. The report, which is currently under review, will summarize the progress by Federal agencies with respect to permitting activities of interstate natural gas pipelines.

The new authorities concerning electrical infrastructure under EPACT include calling on DOE to cooperate with the Federal land management agencies to designate specific energy corridors crossing Federal land (Section 368), to coordinate Federal authorizations required to site transmission facilities (Section 216(h)), to conduct periodic transmission congestion studies to identify areas of concern, and, as the Secretary determines appropriate, designate National Interest Electric Transmission Corridors.

The agencies affected by Section 368 began work shortly after the Energy Policy Act of 2005 was enacted in August 2005. At that time, an interagency team was established with DOE as the lead agency. The Bureau of Land Management is a co-lead, and the Forest Service, the Department of Defense, the Fish and Wildlife Service and the States of California and Wyoming are cooperating agencies. The Coeur d'Alene tribe is also a cooperating agency. In addition, the Department of Commerce is involved as a consulting agency. Pursuant to EPACT Section 372(a), a Memorandum of Understanding (MOU) was signed by the four main agencies in February 2006 with respect to cooperative implementation of Section 368.

A draft Programmatic Environmental Impact Statement (PETS) for the proposed action is expected to be published in the late spring of 2007. The agencies anticipate there will be a 90-day comment period for review, including hearings in each of the

eleven western states. After the final PETS is published, the land use plans are expected to be amended by a record of decision in December 2007.

On August 8, 2006, the Department and eight other Federal agencies signed a MOU on Early Coordination of Federal Authorization and Related Environmental Reviews Required in Order to Site Transmission Facilities on Federal Lands. Since that time, DOE has assembled a team to implement Section 216(h), and is finalizing the Department's procedures, including the roles and responsibilities of Federal agencies and transmission project applicants. I am encouraged by the potential benefits of systematic coordination among Federal agencies and appropriate state agencies, Indian tribes, and multi-state entities to prepare the initial calendars with milestones and deadlines for the Federal authorizations and related reviews required for the siting of transmission facilities. We are currently preparing procedures to implement this section.

Section 1221(a) requires the Secretary to issue a report based on the August 8, 2006 Congestion Study. In that report, the Secretary, at his discretion, may designate any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers as a National Interest Electric Transmission Corridor (National Corridor).

In the August 8, 2006 Congestion Study, the Department invited the public to comment on the designation of National Corridors. The Department continues to evaluate these comments, and has not yet determined whether, and if so, where, it is appropriate to designate National Corridors. Because there is broad public interest in the implementation of Section 1221(a), the Department has decided that, prior to issuing a report that designates any National Corridor, the Department will first issue a draft designation to allow affected states, regional entities, and the general public additional opportunities for review and comment. The Department notes that Section 1221(a) does not require this additional comment period.

Departmental staff have been reviewing the 400 plus comments received in response to the August 8 Congestion Study. The staff is continuing to analyze the data developed in the Congestion Study and provided by commenters, to develop a recommendation for whether, and if so, where, one or more National Corridors should be proposed. Thus far, the staff has not presented a recommendation to the Secretary.

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