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Before the Committee on Appropriations

Energy and Water Development Appropriations

Fiscal Year 2011

111th CONGRESS, SECOND SESSION

S. 3635

DEPARTMENT OF DEFENSE—CIVIL
DEPARTMENT OF ENERGY
DEPARTMENT OF THE INTERIOR
NONDEPARTMENTAL WITNESSES

Energy and Water Development Appropriations, 2011 (S. 3635)

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2011

HEARINGS BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS UNITED STATES SENATE ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

ON

S. 3635

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2011, AND FOR OTHER PURPOSES

**Department of Defense—Civil
Department of Energy
Department of the Interior
Nondepartmental Witnesses**

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2011

WEDNESDAY, MARCH 4, 2010

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senators Dorgan, Murray, Landrieu, Reed, Tester, Bennett, Bond, and Alexander.

DEPARTMENT OF ENERGY

STATEMENT OF HON. STEVEN CHU, SECRETARY

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. We are going to call the hearing to order. This is a hearing of the Senate Appropriations Subcommittee on Energy and Water Development.

Mr. Secretary, welcome to you.

The hearing today is to take testimony from Secretary Chu on the Department of Energy's fiscal year 2011 budget request.

We will have other colleagues who will be joining us momentarily.

And I wanted to mention at the start of the hearing that I am necessarily going to have to leave. The President is signing a piece of legislation that I authored at the White House. So I will be leaving in about an hour, but we will have someone take the chair at that point. Between now and then, we will have a discussion about the budget request.

I would like to note that we will have Administrator D'Agostino before the subcommittee on March 10 to discuss the NNSA fiscal year 2011 budget request. That does not mean that we cannot ask about that today, but because he is going to be here, I just want people to be aware that we will have an opportunity to discuss that budget in some detail in 2 weeks' time.

Further, on March 11, we will have a hearing with the Corps of Engineers and the Bureau of Reclamation on the fiscal year 2011 budget request for water agencies, another very important hearing.

Today's hearing and next week's hearing on the NNSA budget represent I think the good news for the subcommittee. Next Thursday, when we hear from the Corps of Engineers and the Bureau of Reclamation, we will be discussing budget cuts that exceed \$500 million. That is not such good news if one believes water projects

are both important investments in our country's infrastructure and job-creation and necessary. We are going to have a challenge of reconciling the overall budget request to the subcommittee because we are not going to have a half-a-billion-dollar cut for water projects when this subcommittee completes its work. I would hope that would be the case.

The budget request of \$28.9 billion for the Energy Department is a generous 6 percent increase over the enacted fiscal year 2010 bill. Much of that increase is within the National Nuclear Security Administration's budget, which is up about 13 percent. Excluding NNSA, the remaining DOE programs are collectively up about 3 percent.

I am pleased that the administration agrees that energy research is the key to maintaining our competitiveness internationally, as well as increasing our energy security. We need to continue to develop the technology that will allow us to harvest usable energy from the wind and the sun, even as we pursue responsible oil and gas development and ways to reduce carbon emitted when we use coal.

The research that is required to get us to a cleaner energy future happens in this Department, and I am excited about the work that is coming out of the Department, Mr. Secretary.

I do have some concerns and questions about the budget request, obviously, and we will talk about that. The significant priority on funding within the EERE is where programs are up collectively about \$400 million. Only two programs are down from last year. One is hydrogen and the other is water power, and I have some concern, again, about the hydrogen programs which I feel we should continue. I know that you have continued those programs in this budget at a lower rate.

The Office of Science also sees a 6 percent, or \$295 million, increase in its program funding, and there are new initiatives in science, including a proposed battery hub and a new program on combustion engines.

Energy Frontier Research Centers and a fellowship program are proposed for expansion. Both of those programs have only been up for 2 years at this point. So they are now proposed to be expanded.

The ARPA-E program is proposed at \$300 million, and I think that is an exciting program. I know that there was a significant national gathering, Mr. Secretary, Monday and Tuesday of this week. I am told it was very successful, but I am a big supporter of this program and think it holds real promise in its approach to back high-risk, but high-reward technology in energy.

Nuclear energy sees a significant increase with over \$150 million in new initiatives.

I am concerned that we have a lot of new initiatives that we are proposing very significant increases to. I do not know that we know specifically how some of these new initiatives are working yet before we proceed with very large increases. We would like to see longer-term spending plans for some of these initiatives. NNSA, I might say, gives us the 5-year spending plan. It would be nice to see that in some of the rest of the areas.

One of the concerns I have in the budget is—and this will not be a surprise to you, Secretary Chu, is regarding fossil energy. Fos-

oil energy is proposed for an \$86 million decrease, while other accounts receive a substantial increase. Coal provides about 50 percent of our electricity generated today in our country, and I believe that the use of coal, natural gas, and oil will continue to be used for decades to come in this country. So we have to find the means to use our fossil fuels and develop the technologies, put a price on carbon, and do so in a way that helps us mitigate greenhouse gas emissions. All of that is critically important.

But I am concerned because the fossil energy account does not show me new, substantive, elements in the budget to address what I think is a critical need as well. I am a big fan of all the renewables and this search for new technology and new science, but I think it is important to keep our eye on the ball with respect to fossil energy, which we are going to continue to use.

I have said before, Secretary Chu, you are a creative and innovative person who has demonstrated great skill in a lot of areas and I think much of that creativity and innovation is something we can see in your budget request. I am really pleased that you are where you are and while we will have some disagreements on the broader issues, I think that this budget request moves us down the road in some very important areas as well in a constructive way.

Let me call on Senator Bennett for an opening statement.

OPENING STATEMENT OF SENATOR ROBERT F. BENNETT

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

Secretary Chu, we are delighted to have you here, along with your team.

I find myself in agreement with many of things the chairman has highlighted. The NNSA budget is something we will discuss at another hearing. So I will not get into that.

But I agree with the chairman that energy research is something that we clearly need to do in a wide variety of areas, and investments in the energy sector are some of the most important we can make.

Now, I am concerned with the priorities that I see in the budget with respect to energy research, and let us talk about some of those concerns.

Talk about unobligated balances. I am assuming the budget request was considered without taking into account what was funding from the stimulus bill, or the Recovery Act. Over a year ago, with a promise of creating thousands of jobs and increasing energy efficiency, reducing the nuclear waste footprint—and these goals are far from being met. The Department of Energy is sitting on a tremendous balance of unspent funds. About \$34 billion of the \$36.7 billion appropriated remains unspent, 93 percent, as well as over \$1 billion in funds from prior year balances in numerous programs. The money seems to be piling up down there from prior appropriations bills.

As one example, with over \$5 billion available in weatherization funds, I cannot understand why your budget would include a 43 percent increase in the amount provided in fiscal year 2010 for this program, especially when the Department's own estimates indicate that the stimulus funds will not be spent until well in 2012.

Now, another aspect that I find troubling is the same one the chairman has referred to, to slash the fossil energy R&D program by more than 20 percent. Here you have got all of this money unspent in this one area and then you are saying, well, we are going to cut fossil energy R&D by more than 20 percent, and this includes eliminating the natural gas technology's account and the unconventional fossil energy's technology line that we in this subcommittee included in last year's bill.

So I am glad the chairman raised this as an issue. Fossil energy and particularly natural gas is the only energy that we have that will bridge the gap between today and the clean energy future that we are hoping for in, roughly, 30 to 40 years. And that is a significant timeframe, and to be cutting back on the fuel that will allow us to deal with that timeframe is something I think we need to discuss.

Now, if I can be specific with respect to my State on this question of fossil fuel research, you are halting research on unconventional resources in eastern Utah, southern Wyoming, and western Colorado. Every energy expert says that in that pool of shale oil, there is more oil than there is in Saudi Arabia, but it needs some research to figure out how to get it out. But it will remain virtually untapped if this research is not performed.

Another area that concerned me is the sizable reduction to hydropower. Solar and wind receive unsustainable increases. You cannot spend that much money and you want to tax utilities to generate \$200 million. Well, that was a non-starter last year. I think it will be a non-starter again this year. It leaves a \$200 million hole in your budget.

While I am in the West, let us talk about uranium sales. I was very concerned that the Department unilaterally decided to drop some of its inventory of uranium on the market this year, bartering uranium in exchange for cleanup work at the Portsmouth, Ohio site. Now, obviously, this caused great consternation with uranium miners due to a potential for steep drops in the price of uranium, and the spots sales approach is a bad deal for the taxpayer in my view. The Department is proposing increased appropriations for decontamination and decommissioning work at Portsmouth in fiscal year 2011 in lieu of continuing the bartering arrangement.

Now, I understand the Department has not stated with certainty that it will discontinue the practice of dumping uranium on the market, and certainty is what the uranium industry or any other industry needs. Uncertainty always causes difficulties and challenges, and I hope we can have an opportunity to work together on this problem as we move forward.

Now, on a more positive note, I think you are on the right track with your 5 percent increase in nuclear energy and the tripling of the loan guarantee authority for nuclear plant construction. The demand for loan guarantees in nuclear technology outstrips the current loan authority. It is going to be critical in jump starting the nuclear industry, and I think that is a key part of the path to energy that does not have greenhouse gas emissions.

Now, while I am glad to see the increase and the tripling of the loan guarantee, the loan guarantee program has been mired in problems. And in the 5 years since it was authorized—and that

precedes your entry into the Department—only one guarantee has been issued. Five conditional commitments have been made, and it was the Department's intention to have 21 commitments by the end of 2009. According to GAO, the program has been run in an ad hoc manner without any transparency to the applicants and the situation where there are different rules applied in different instances.

And we would like to know if you have the tools in hand to make the program a success or whether you need additional legislative fixes. If you do need additional legislative fixes, let us know because I am supportive of providing the additional guarantee and would love to see demonstrable improvements to the program.

Contract administration and project management, with over 90 percent of your budget spent on contracts, improving contract administration, obviously, has to be a very high level issue. And DOE contract management has been on the GAO high risk list of programs ripe for fraud, waste, and abuse since 1990. So again, this predates you and is not something that we can lay at your feet, but it is something that you inherited. And strengthening contract management includes the development of high quality cost estimates early on. The surprise we received a year ago when we held these hearings, Mr. Chairman, about enormous pension liabilities seem as illustrative of the problem you have when contracts are not managed properly.

And I am glad to hear that the Department is beginning to get its arms around this problem, but we still do not know what the pension liability is going to be for this year or for next or how the Department plans to get this under control in the future. And the amount to cover the shortfall is potentially in the hundreds of millions of dollars. So this is something that we are going to follow closely.

Now, to close, I have a bittersweet example of something I am concerned about. The Moab tailings sites in my home State have met all of its milestones. It has got a million tons of tailings shipped and disposed of. It is coming in under budget and ahead of schedule. And the project is slated to be decreased to \$8 million, or 20 percent, in this budget. And I say, wait a minute. Is this a good deed that is going unpunished as they are moving these tailings in a very expeditious way and get rewarded for that by having a cut in the budget and a suggestion that they will slow down the excellent progress that they have established?

So, on that parochial note Mr. Chairman, thank you very much for the opportunity to comment.

Senator DORGAN. Senator Bennett, thank you very much.

Unless there is objection, I am going to welcome Secretary Chu's testimony, and then we will have robust rounds of questions. Senator Reed, does that work for you?

Senator REED. All right.

Senator DORGAN. All right, and Senator Tester.

Senator TESTER. Okay.

Senator DORGAN. Mr. Secretary, thank you very much and why do you not proceed? Your entire statement will be made a part of the permanent record and we would ask that you summarize. Thank you very much.

STATEMENT OF HON. STEVEN CHU

Secretary CHU. Thank you, Chairman Dorgan, Ranking Member Bennett. I hope to respond to your questions later, but let me first go through my remarks.

Senator DORGAN. You may respond as you wish in your opening statement or as an adjunct to your opening statement as well.

Secretary CHU. Well, if there is time.

Chairman Dorgan, Ranking Member Bennett, members of the subcommittee, I thank you for the opportunity to be before you today to talk about the President's budget request.

President Obama has stated that "the Nation that leads the world in creating new sources of clean energy will be the Nation that leads the 21st century economy." And I share this view.

The President's 2011 budget request for \$28.4 billion for the Department of Energy will help position the United States to be a global leader in the new energy economy. The budget request makes much-needed investments to harness the power of American ingenuity. This request will create clean energy jobs, expand the frontiers of science, reduce nuclear dangers, and help curb the carbon pollution that threatens our planet.

The President's budget request includes an investment of \$2.4 billion in energy efficiency and renewable sources of energy. It also proposes innovative energy efficiency and renewable energy projects through \$500 million in credit subsidy that will support \$3 billion to \$5 billion in lending. It expands the Advanced Manufacturing Tax Credit by \$5 billion, a program that was oversubscribed by three to one, to help build a robust domestic manufacturing capacity for clean energy technologies. Through this budget, we will increase research, demonstration, and deployment of wind, solar, and geothermal energies; make buildings and homes more efficient; develop energy-efficient vehicles; and pursue carbon capture and sequestration.

Nuclear energy must also be part of our clean energy mix. Our budget request includes an additional \$36 billion in loan guarantee authority for the nuclear power sector, as well as \$495 million for nuclear energy research and development. On February 16th, President Obama announced conditional commitments for more than \$8 billion in loan guarantees for what will be the first nuclear powerplant to break ground in nearly three decades.

We have many technologies in hand today to begin the transition to a low-carbon economy, but we will need breakthroughs and better technologies to meet our long-term goals. The budget request invests in basic and applied research and puts us on a path to doubling funding for science, a key presidential priority.

The budget request supports the Department's three new complementary approaches to marshalling the Nation's brightest minds to accelerate energy breakthroughs.

We will continue funding the three Energy Innovation Hubs introduced in 2010. In addition, we are proposing a new hub to dramatically improve batteries and energy storage.

The Energy Frontier Research Centers program will be expanded to capture new and emerging opportunities.

And the fiscal year 2011 budget request includes \$300 million to pursue potentially transformative technologies through the Advanced Research Projects Agency-Energy.

We are also requesting \$55 million to start RE-ENERGYSE initiatives to support K through 20-plus science and engineering education.

In addition to the health of our economy and our planet, the Department of Energy is focused on the safety and security of our people. Last April in Prague, President Obama outlined an ambitious agenda to address the greatest threat to global security, the danger of terrorists getting their hands on nuclear weapons or the material to build them. The Department is requesting a significant increase, more than \$550 million in new funding, for the NNSA Defense Nuclear Nonproliferation program to help meet the President's goals of securing all vulnerable nuclear materials around the world in 4 years.

The President has also made clear that as long as nuclear weapons continue to exist, it is essential we ensure the safety, security, and effectiveness of our nuclear stockpile. With the \$7 billion in funds we have requested, we can upgrade our infrastructure that has been allowed to decay in the past decade, support the work of our national labs, and recruit the skilled workforce we need.

The budget also protects public health and safety by cleaning up the environmental legacy of the Nation's nuclear weapons program. In 2010, the Department will discontinue its application to the U.S. Nuclear Regulatory Commission for a license to construct a high-level waste geological repository at Yucca Mountain.

To deal with our nuclear waste management needs, the administration has announced an independent, bipartisan commission, co-chaired by General Brent Scowcroft and Congressman Lee Hamilton, to conduct a comprehensive review of the back end of the fuel cycle and to provide recommendations for a safe, long-term solution.

Building a clean energy future will not be easy, but it is necessary for our economy and our security. As a scientist, I am optimistic. I believe we can meet the challenge and lead the world in the 21st century.

PREPARED STATEMENT

President Obama and I look forward to working with this subcommittee and this Congress to build a stronger, safer, more prosperous future. Thank you. I am pleased to take questions at this time.

[The statement follows:]

PREPARED STATEMENT OF HON. STEVEN CHU

Chairman Dorgan, Ranking Member Bennett, and members of the subcommittee, thank you for the opportunity to appear before you today to discuss the President's fiscal year 2011 budget request for the Department of Energy.

President Obama has stated, "The nation that leads the world in creating new sources of clean energy will be the nation that leads the 21st century global economy." I fervently share this view. The President's fiscal year 2011 budget request of \$28.4 billion will help position the United States to be the global leader in the new energy economy. The budget request makes much-needed investments to harness the power of American ingenuity. This request will create clean energy jobs, expand the frontiers of science, reduce nuclear dangers, and help curb the carbon

pollution that threatens our planet. As part of this administration's commitment to fiscal responsibility, the Department of Energy is also proposing several program reductions and terminations.

AMERICAN RECOVERY AND REINVESTMENT ACT

The fiscal year 2011 budget request builds on the investments in the American Recovery and Reinvestment Act. Through the \$36.7 billion the Department received from the Recovery Act, we are putting Americans to work, while helping to build a clean energy economy, spur energy innovation, and reduce our dependence on oil. We've begun to make our homes and offices more energy efficient, modernize our grid, and invest in key renewable energy projects. Getting this money out the door quickly, carefully, and transparently has been and will continue to be a top priority for me.

FISCAL YEAR 2011 BUDGET SUPPORTS STRATEGIC PRIORITIES

To continue the progress we have made, the fiscal year 2011 budget request supports the Department's strategic priorities of:

- Transitioning to a low-carbon economy by developing and deploying clean and efficient energy technologies, increasing generation capacity and improving our transmission capabilities;
- Investing in scientific discovery and innovation to find solutions to pressing energy challenges and maintain American economic competitiveness; and
- Enhancing national security by ensuring the safety, security and effectiveness of the nuclear stockpile without testing. The budget request also includes funds to work with our international partners to secure vulnerable nuclear material around the world within 4 years, and advance our nuclear legacy cleanup.

These strategic priorities will be enabled by a continued commitment to improving the management and fiscal performance of the Department.

ENERGY

To transition to a low-carbon future, we must change the way we generate and use energy. The President's budget request invests in clean energy priorities, including an investment of \$2.4 billion in energy efficiency and renewable sources of energy. It also promotes innovative energy efficiency and renewable energy projects through \$500 million in credit subsidy that will support \$3 to \$5 billion in lending. It expands the Advanced Manufacturing Tax Credit by \$5 billion to help build a robust domestic manufacturing capacity for clean energy technologies. Through this budget, we will increase research, demonstration, and deployment of wind, solar and geothermal energies; make buildings and homes more efficient; develop energy efficient vehicles; and pursue carbon capture and sequestration.

Nuclear energy must also be a part of our clean energy mix. During his State of the Union address, President Obama said, "To create more of these clean energy jobs, we need more production, more efficiency, more incentives. And that means building a new generation of safe, clean nuclear power plants in this country." The President and I are committed to restarting our domestic nuclear industry. Our budget request includes an additional \$36 billion in loan guarantee authority for the nuclear power sector to help construct the first new nuclear plants in decades, as well as \$495 million for research and development to support the competitiveness, safety and proliferation resistance of nuclear energy in the United States and abroad. On February 16, President Obama announced conditional commitments for more than \$8 billion in loan guarantees for what will be the first U.S. nuclear power plant to break ground in nearly three decades.

INNOVATION

We have many technologies in hand today to begin the transition to a low-carbon economy, but we will need breakthroughs and better technologies to meet our long-term goals. The budget request invests in basic and applied research and puts us on the path to doubling funding for science, a key presidential priority. We are also requesting \$55 million to start the RE-ENERGYSE initiative to help educate the next generation of scientists and engineers.

The budget request also supports the Department's three new, complementary approaches to marshalling the Nation's brightest minds to accelerate energy breakthroughs.

The first approach is the Energy Innovation Hubs. The Hubs are multidisciplinary, goal-oriented, and will be managed by top teams of scientists and engineers with enough resources and authority to move quickly in response to new develop-

ments. They are to be modeled after laboratories such as MIT's Radiation Laboratory, which developed radar during World War II, and Bell Laboratories when it invented and developed the transistor. Ideally, this work will be conducted under one roof. The Department will continue funding the three Energy Innovation Hubs introduced in fiscal year 2010. In addition, we are proposing a new Hub to dramatically improve batteries and energy storage.

The second approach is the Energy Frontier Research Centers. The EFRCs are mainly university-based, problem-oriented research. We have identified key scientific barriers to energy breakthroughs, and we believe we can clear these roadblocks faster by linking together small groups of researchers across departments, schools, and institutions. The Department proposes expanding the Energy Frontier Research Centers to capture emerging opportunities in new materials and basic research for energy needs.

The third funding approach is the Advanced Research Projects Agency-Energy (ARPA-E). ARPA-E is technology-oriented. We are seeking the boldest and best ideas for potentially transformative energy technologies and funding them to see if they work. The fiscal year 2011 budget request includes \$300 million for ARPA-E. ARPA-E is also dedicated to the market adoption of these new technologies. This week, ARPA-E sponsored a very successful conference here in Washington to bring together our Nation's energy innovators. I want to thank Chairman Dorgan for attending this event.

SECURITY

In addition to the health of our economy and our planet, the Department of Energy is focused on the safety and security of our people. Last April in Prague, President Obama outlined an ambitious agenda to address the greatest threat to global security—the danger of terrorists getting their hands on nuclear weapons or the material to build them. The Department is requesting a significant increase in the budget—more than \$550 million in new funding—for the NNSA Defense Nuclear Nonproliferation program to help meet the President's goal of securing all vulnerable nuclear materials around the world in 4 years.

The President has also made clear that, as long as nuclear weapons continue to exist, it is essential that we ensure the safety, security and effectiveness of our nuclear stockpile. With the \$7 billion in funds we have requested, we can upgrade our infrastructure that has been allowed to decay in the past decade, support the cutting-edge work of our National Labs, and recruit the skilled workforce we need today and in the future. Over the next 5 years, we intend to boost this funding by more than \$5 billion. Even in a time of tough budget decisions, we must make this investment for the sake of our security.

The budget request also protects public health and safety by cleaning up the environmental legacy of the Nation's nuclear weapons program. In 2010 the Department will discontinue its application to the U.S. Nuclear Regulatory Commission for a license to construct a high-level waste geologic repository at Yucca Mountain.

Both the President and I have made clear that Yucca Mountain is not an option. To deal with our nuclear waste management needs, the administration has brought together a range of experts to conduct a comprehensive review of the back end of the fuel cycle. The Blue Ribbon Commission announced recently, and co-chaired by General Brent Scowcroft and Congressman Lee Hamilton, will provide recommendations for developing a safe, long-term solution to managing the Nation's used nuclear fuel and its nuclear waste.

As part of our comprehensive strategy to restart the nuclear industry, we also propose breaking down artificial stovepipes and merging the Office of Civilian Radioactive Waste Management into the Office of Nuclear Energy.

MANAGEMENT

Finally, in order to transform the way Americans generate and use energy, we must transform the Department itself. As part of the Obama administration's reform agenda, the budget request includes \$2 million to establish a new Management Reform initiative to provide strategic direction, coordination and oversight of reform initiatives. This initiative will report directly to me and will receive close personal attention. We made important reforms when we began to implement the Recovery Act, and now we need to institutionalize those reforms and apply them across the Department.

Additionally, we are committed to being good stewards of the taxpayers' money. As we developed the budget, we looked to eliminate or reduce programs where we could. For example, we eliminated more than \$2.7 billion in tax subsidies for oil,

coal and gas industries. This step is estimated to generate more than \$38.8 billion in revenue for the Federal Government over the next 10 years.

Building a clean energy future won't be easy, but it is necessary for our economy and our security. As a scientist, I am an optimist, and I believe that we can meet this challenge and lead the world in the 21st century.

HIGHLIGHTS OF THE FISCAL YEAR 2011 DEPARTMENT OF ENERGY BUDGET

The Department's fiscal year 2011 budget request of \$28.4 billion, a 6.8 percent or \$1.8 billion increase from fiscal year 2010, supports the President's commitment to respond in a considered, yet expeditious manner to the challenges of rebuilding the economy, maintaining nuclear deterrence, securing nuclear materials, improving energy efficiency, incentivizing production of renewable energy, and curbing greenhouse gas emissions that contribute to climate change. Together with the American Recovery and Reinvestment Act of 2009 (Recovery Act) and fiscal year 2010 budget, the fiscal year 2011 budget request supports investment for a multi-year effort to address these interconnected challenges.

The fiscal year 2011 budget builds on the \$36.7 billion in Recovery Act funding. By the end of fiscal year 2010, the Department expects to obligate 100 percent and outlay roughly 35–40 percent of Recovery Act funds. In developing the fiscal year 2011 budget request, the Department has taken these investments into account. Recovery Act investments in energy conservation and renewable energy sources (\$16.8 billion), environmental management (\$6 billion), funds supporting loan guarantees for renewable energy and electric power transmission projects (\$4 billion), grid modernization (\$4.5 billion), carbon capture and sequestration (\$3.4 billion), basic science research (\$1.6 billion), and the establishment of the Advanced Research Projects Agency—Energy (\$0.4 billion) will continue to strengthen the economy by providing much-needed investment, by saving or creating tens of thousands of direct jobs, cutting carbon emissions, and reducing U.S. dependence on oil.

The President's fiscal year 2011 budget supports our three strategic priorities:

- Innovation*.—Investing in science, discovery and innovation to provide solutions to pressing energy challenges
- Energy*.—Providing clean, secure energy and promoting economic prosperity through energy efficiency and domestic forms of energy
- Security*.—Safeguarding nuclear and radiological materials, advancing responsible legacy cleanup, and maintaining nuclear deterrence

These strategic priorities will be enabled by a continued commitment to management excellence:

- Management*.—Transforming the culture of the Department with a results-oriented approach

Innovation—Investing in Science, Discovery and Innovation to Provide Solutions to Pressing Energy Challenges

As President Obama made clear in his remarks to the National Academy of Sciences in April 2009, the public sector must invest in research and innovation not only because the private sector is sometimes reluctant to take large risks, but because the rewards will be broadly shared across the economy. Leading requires assembling a critical mass of the best scientists and engineers to engage in mission-oriented, cross-disciplinary approaches to addressing current and future energy challenges. To develop clean energy solutions and maintain nuclear security, the Department must cultivate the science, technology, engineering, and mathematics workforce of the next generation. The fiscal year 2011 budget request of \$55 million for RE-ENERGYSE (Regaining our ENERGY Science and Engineering Edge) supports K–20+ science and engineering education.

With every initiative the Department undertakes, sound science must be at the core. In fiscal year 2011 the Department will increasingly emphasize cross-cutting initiatives to link science throughout the Department, specifically with energy and national security programs. These cross-cutting initiatives will enhance science capabilities to create knowledge and innovative technologies that can be brought to bear on national energy and security issues, leverage world-class science and engineering expertise to establish global leadership as clean energy innovators, and employ use-inspired research to reduce the cost and time to bring technologies to market at scale. The Department believes that it will deliver solutions more quickly and efficiently through our efforts to break down the traditional stovepipes and operate in a more integrated and coordinated manner. The fiscal year 2011 budget continues to address the President's priorities in an integrated and efficient manner, and to deliver results for the American taxpayer.

The Department continues its strong commitment to basic research and supports the President's Plan for Science and Innovation by requesting funding for the Office

of Science at \$5.1 billion, a 4.4 percent or \$218 million increase from fiscal year 2010. The fiscal year 2011 budget request will support the training of students and researchers in fields critical to national competitiveness and innovation, and will support investments in areas of research essential for a clean energy future. The President's Plan commits to doubling Federal investment in basic research at select agencies. The Department supports an overarching commitment to science by investing in basic and applied research, creating new incentives for private innovation and promoting breakthroughs in energy.

To help achieve the game-changing breakthroughs needed to continue leading the global economy, the fiscal year 2011 budget request includes \$300 million for the Advanced Research Projects Agency-Energy (ARPA-E). Introduced in fiscal year 2009, ARPA-E is responsible for enabling specific high-risk and high-payoff transformational research and development projects. Beyond simply funding transformational research that creates revolutionary technologies, ARPA-E is dedicated to the market adoption of those new technologies to meet the Nation's long-term energy challenges. This funding, along with the \$400 million made available through the Recovery Act, will provide sustained investment in this pioneering program.

The Department will continue funding the three Energy Innovation Hubs introduced in fiscal year 2010 to focus on developing fuels that can be produced directly from sunlight, improving energy efficient building systems design, and using modeling and simulation tools to create a virtual model of an operating advanced nuclear reactor. In addition, DOE is proposing a new Hub to focus on batteries and energy storage. Each of these Hubs will bring together a multidisciplinary team of researchers in an effort to speed research and shorten the path from scientific discovery to technological development and commercial deployment of highly promising energy-related technologies.

Complementing the Hubs, the Department proposes expanding the Energy Frontier Research Centers in fiscal year 2011 to capture new, emerging opportunities by furthering its scientific reach and potential technological impact by competitively soliciting in two categories: discovery and development of new materials critical to science frontiers and technology innovations, and basic research for energy needs.

Energy—Providing Clean, Secure Energy and Promoting Economic Prosperity through Energy Efficiency and Domestic Forms of Energy

In Copenhagen, President Obama emphasized that climate change is a grave and growing danger. The imperative now is to develop the capacity to confront the challenges climate change poses and seize the opportunity to be the global leader in the clean energy economy. Meeting the administration's goal to reduce carbon emissions by more than 80 percent by 2050 will be achieved by addressing supply and demand through increased energy efficiency, renewable generation, and grid modernization, as well as improvements in existing technologies and information analysis. An important tool that will continue to be used to address these issues will be loan guarantees. The Department's fiscal year 2011 budget request, building on the fiscal year 2010 budget and the Recovery Act, invests in the research, development, and deployment of technologies that will position the United States to lead international efforts to confront climate change now and in the future. The long-term economic recovery will be sustained by these continued investments in the new energy economy.

Loan Guarantees

The Loan Guarantee Program Office (LGPO) is a vital tool for promoting innovation in the energy sector across a broad portfolio of clean and efficient energy technologies. In fiscal year 2011, the Department is requesting funding and authority to support approximately \$40 billion in additional loan authority for innovative energy technology development. During fiscal year 2010, the LGPO streamlined the application review process. The new authority requested will help the Department to encourage and accelerate the availability of loans to leverage private sector investment in clean energy projects that will save and create jobs and stimulate the economy.

Energy Efficiency

In August 2009, President Obama said, "If we want to reduce our dependence on oil, put Americans back to work and reassert our manufacturing sector as one of the greatest in the world, we must produce the advanced, efficient vehicles of the future." In fiscal year 2011, the Department will promote energy efficiency in vehicles technologies, at \$325 million. No less important to achieving the President's stated ambitions is decreasing energy consumption through developing and advancing building technologies (\$231 million) and industrial technologies (\$100 million). Federal assistance for State-level programs, such as State Energy Program grants

(\$75 million, a 50 percent increase from fiscal year 2010) and Weatherization Assistance grants (\$300 million, a 43 percent increase from fiscal year 2010), will help States and individuals take advantage of efficiency measures for buildings and homes, lower energy costs and greenhouse gas emissions, and develop an ever-evolving, technically proficient workforce.

Clean, Renewable Energy Generation

The fiscal year 2011 budget request will modernize the Nation's energy infrastructure by investing in a variety of renewable sources such as solar (\$302 million), wind (\$123 million), water (\$41 million), hydrogen (\$137 million), biomass (\$220 million) and geothermal (\$55 million). These sources of energy reduce the production of greenhouse gas emissions and continue the pursuit of a clean energy economy built on the next generation of domestic production. The Department is also continuing to promote domestic clean energy through the four Power Marketing Administrations, which market and deliver electricity primarily generated by hydroelectric dams.

Grid Modernization

In support of the modernization of the electricity grid, the President's fiscal year 2011 budget requests \$144 million for research and development to improve reliability, efficiency, flexibility, and security of electricity transmission and distribution networks. The "Smart Grid" will integrate new and improved technologies into the energy mix, ensuring reliability, integration of renewable energy resources, and improving security.

While investing in energy efficiency, renewable energy generation, and grid modernization are fundamental steps necessary for creating a clean energy economy; investing in the improvement of existing sources of energy will provide a bridge between current and future technologies. These technologies are already a major segment of the energy mix and will play a critical role in providing a solid foundation that will make possible the creation of this new economy.

Safe and Secure Nuclear Energy

Nuclear energy currently supplies approximately 20 percent of the Nation's electricity and 70 percent of the Nation's clean, non-carbon electricity. The request for the Office of Nuclear Energy includes \$495 million for research, development, and demonstration in addition to investments in supportive infrastructure. Work on advanced reactor technologies, fuel cycle technologies, waste management, and cross-cutting technologies and transformative concepts will help ensure that nuclear energy remains a safe, secure, economical source of clean energy. The Department will also promote nuclear energy through the Loan Guarantee Program, which is requesting an additional \$36 billion in loan authority for nuclear power in fiscal year 2011 (for a total of \$54.5 billion).

Clean and Abundant Fossil Energy

The world will continue to rely on coal fired electrical generation to meet energy demand. It is imperative that the United States develop the technology to ensure that base-load electricity generation is as clean and reliable as possible. The Office of Fossil Energy will invest \$438 million in the research and development of advanced coal-fueled power systems and carbon capture and storage technologies. This will allow the continued use of the abundant domestic coal resources in the United States while reducing greenhouse gas emissions.

Accurate energy information and analysis play a critical role in promoting efficient energy markets and informing policy-making and strategic planning. This budget requests a total of \$129 million for the Energy Information Administration, the statutory statistical agency within the Department, to improve energy data and analysis programs.

Security—Safeguarding Nuclear and Radiological Materials, Advancing Responsible Legacy Cleanup and Maintaining Nuclear Deterrence

Reduces the Risk of Proliferation

In an April 2009 speech in Prague, the President called the threat of nuclear proliferation "the most immediate and extreme threat to global security" and announced his support for a new international effort to secure all vulnerable nuclear material around the world within 4 years. The fiscal year 2011 budget for the NNSA Defense Nuclear Nonproliferation program supports this effort, recognizing the urgency of the threat and making the full commitment to global cooperation that is essential to addressing this threat. The budget provides \$2.7 billion in fiscal year 2011, and \$13.7 billion through fiscal year 2015 to detect, secure, and dispose of dangerous nuclear and radiological material worldwide. This request is an increase

of 26 percent or \$550 million from fiscal year 2010. The budget supports cooperative nonproliferation initiatives with foreign governments and the effort and expertise to forge them into durable international partnerships, achieving the objective of a world without nuclear weapons. The budget continues the installation of radiation detection equipment at international border crossings and Megaports, significantly expands materials protection and control security upgrades at selected sites in foreign countries to address outsider and insider threats, and accelerates the pace of highly enriched uranium research reactor conversions with an urgent focus to develop the capability to produce the medical isotope molybdenum-99 in the United States using low enriched uranium. The fiscal year 2011 budget request provides \$4.4 billion over 5 years for Fissile Materials Disposition including the construction of U.S. facilities for the disposition of U.S. weapons-grade plutonium in fulfillment of our commitment with the Russian Federation under the Plutonium Management and Disposition Agreement of September 2000, and provides the first \$100 million of a \$400 million U.S. commitment to advance the construction of plutonium disposition facilities in the Russian Federation. The fiscal year 2011 budget request also supports a funding increase for Nonproliferation and Verification Research and Development for new technologies in support of treaty monitoring and verification.

Leverages Science to Maintain Nuclear Deterrence

The fiscal year 2011 budget request advances the Department's commitment to the national security interests of the United States through stewardship of a safe, secure and effective nuclear weapons stockpile without the use of underground nuclear testing. As the role of nuclear weapons in our Nation's defense evolves and the threats to national security continue to grow, the focus of this enterprise must also change and place its tremendous intellectual capacity and unique facilities in the service of addressing other challenges related to national defense. NNSA is taking steps to move in this direction, including functioning as a national science, technology, and engineering resource to other agencies with national security responsibilities. NNSA must ensure our evolving strategic posture places the stewardship of our nuclear stockpile, nonproliferation programs, counterterrorism, missile defenses, and the international arms control objectives into one comprehensive strategy that protects the American people and our allies. Through the NNSA, the Department requests \$7.0 billion for the Weapons Activities appropriation, a 9.8 percent or \$624 million increase from the fiscal year 2010 appropriation. This increase provides a strong basis for transitioning to a smaller nuclear stockpile, strengthens the science, technology and engineering base, modernizes key nuclear facilities, and streamlines the enterprise's physical and operational footprint.

These investments will enable execution of a comprehensive nuclear defense strategy based on current and projected global threats that relies less on nuclear weapons, yet enhances national security by strengthening the NNSA's nuclear security programs. This improved NNSA capability base will mitigate the concerns regarding ratification of the follow-on Strategic Arms Reduction Treaty and the Comprehensive Test Ban Treaty. The fiscal year 2011 request for Weapons Activities has four major components. The request for Stockpile Support increases, reflecting the President's commitment to maintain the safety, security and effectiveness of the nuclear deterrent without underground nuclear testing, consistent with the principles of the Stockpile Management Program outlined in section 3113(a)(2) of the National Defense Authorization Act of fiscal year 2010 (50 U.S.C. 2524). The request for Science, Technology and Engineering increases by over 10 percent, and provides the funding necessary to protect and advance the scientific capabilities at the U.S. nuclear security laboratories supporting the stockpile and broader national security and energy issues. The budget request for infrastructure supports the operation and maintenance of the Government-owned, contractor-operated facilities in the nuclear security enterprise, as well as special capabilities for secure transportation and construction. The security and counterterrorism component of the budget provides for physical and cyber security in the NNSA enterprise, as well as emergency response assets and NNSA's focused research and development contribution to the Nation's counterterrorism efforts.

Advances Responsible Environmental Cleanup

The fiscal year 2011 budget includes \$6 billion for the Office of Environmental Management to protect public health and safety by cleaning up hazardous, radioactive legacy waste from the Manhattan Project and the cold war. This funding will allow the program to continue to accelerate cleaning up and closing sites, focusing on activities with the greatest risk reduction.

As the Department continues to make progress in completing clean-up, the fiscal year 2011 budget request of \$189 million for the Office of Legacy Management sup-

ports the Department's long-term stewardship responsibilities and payment of pensions and benefits for former contractor workers after site closure.

The administration has determined that the Yucca Mountain repository is not a workable option and has decided to terminate the Office of Civilian Radioactive Waste Management. The core functions and staff to support efforts under the Nuclear Waste Policy Act to meet the obligation of the Government will transfer to the Office of Nuclear Energy by the end of fiscal year 2010.

Management—Transforming the Culture of the Department With a Results-Oriented Approach

In order to transform the way Americans use and produce energy, we must transform the Department of Energy. The Department is committed to strengthening its management culture and increasing its focus on results. The implementation of the Recovery Act provided the Department with an opportunity to continue to refine best practices in management, accountability, operations, and transparency. These best practices will be applied in executing the fiscal year 2011 budget.

To achieve our strategic priorities, the Department requests a net of \$169 million for departmental administration. These funds, along with resources in individual program offices, will help transform key functional areas such as human, financial, project, and information technology management. The request includes \$2 million for Management Reform within the Office of the Secretary, which will provide the Department with strategic direction, coordination, and oversight of reform initiatives.

DEPARTMENT OF ENERGY FISCAL YEAR 2011 PROGRAM OFFICE HIGHLIGHTS

Office of Science—Supporting Cutting-Edge Foundational Scientific Research

The Department of Energy's Office of Science (SC) delivers discoveries and scientific tools that transform our understanding of energy and matter and advance the national, economic, and energy security of the United States. SC is a primary sponsor of basic research in the United States, leading the Nation to support the physical sciences in a broad array of research subjects in order to improve energy security and address issues ancillary to energy, such as climate change, genomics, and life sciences. In fiscal year 2011, the Department requests \$5.1 billion, an increase of 4.4 percent over the enacted fiscal year 2010 appropriation, to invest in science research. The fiscal year 2011 request supports the President's Plan for Science and Innovation, which encompasses the entire SC budget, as part of a strategy to double overall basic research funding at select agencies. As part of this plan, the budget request supports the training of students and researchers in fields critical to our national competitiveness and innovation economy, and supports investments in areas of research critical to our clean energy future and to making the United States a leader on climate change.

SC is addressing critical societal challenges and key missions of the Department of Energy through significant improvements in existing technologies and development of new energy technologies. SC will accomplish this by: (1) sustained investments in exploratory and high-risk research in traditional and emerging disciplines, including the development of new tools and facilities; (2) focused investments in high-priority research areas; and (3) investments that train new generations of scientists and engineers to be leaders in the 21st century. The fiscal year 2011 budget request supports all three of these investment strategies.

Two of the four Energy Innovation Hubs being requested in fiscal year 2011 are through the Office of Science; these Hubs will bring together teams of experts from multiple disciplines to focus on two grand challenges in energy: (1) Fuels from Sunlight, a Hub established in fiscal year 2010 and (2) Batteries and Energy Storage, a new Hub in the fiscal year 2011 request.

The Energy Frontier Research Centers (EFRC) program will be expanded in the fiscal year 2011 request to capture new, emerging opportunities by furthering its scientific reach and potential technological impact. New EFRCs will be competitively solicited in two categories: discovery and development of new materials that are critical to both science frontiers and technology innovations, and basic research for energy needs in a limited number of areas that are underrepresented in the 46 original EFRC awards.

The fiscal year 2011 request for the U.S. ITER Project (\$80 million, a decrease of \$55 million from fiscal year 2010) is a reflection of the pace of ITER construction as of the end of 2009. The administration is engaged in a range of efforts to implement management reforms at the ITER organization and accelerate ITER construction while minimizing the overall cost of the construction phase for the United States and the other ITER members.

The Office of Science supports investigators from more than 300 academic institutions and from all of the DOE laboratories. The fiscal year 2011 budget request will support approximately 27,000 Ph.D.s, graduate students, undergraduates, engineers, and technicians. Nearly 26,000 researchers from universities, national laboratories, industry, and international partners are expected to use SC scientific user facilities in fiscal year 2011.

Advanced Research Projects Agency-Energy—Transformational Research and Development

The fiscal year 2011 budget request includes \$300 million for the Advanced Research Projects Agency-Energy (ARPA-E), a program launched in fiscal year 2009 that sponsors specific high-risk and high-payoff transformational research and development projects that overcome the long-term technological barriers in the development of energy technologies to meet the Nation's energy challenges, but that industry will not support at such an early stage. An essential component of ARPA-E's culture is an overarching focus on accelerating science to market. Beyond simply funding transformational research creating revolutionary technologies, ARPA-E is dedicated to the market adoption of those new technologies that will fuel the economy, create new jobs, reduce energy imports, improve energy efficiency, reduce energy-related emissions, and ensure that the U.S. maintains a technological lead in developing and deploying advanced energy technologies.

Office of Energy Efficiency and Renewable Energy—Developing and Deploying Clean, Reliable Energy

The Office of Energy Efficiency and Renewable Energy (EERE) strengthens the energy security, environmental quality, and economic vitality of the United States through the research, development, demonstration and deployment (RDD&D) of clean energy technologies and generation and advances in energy efficiency. EERE's activities are critical to creating a low carbon economy and sustaining strong economic growth and job creation while dramatically reducing greenhouse gas emissions and energy imports. EERE programs link advances in basic research and the creation of commercially successful products and services to ensure delivery to the marketplace for general use and implementation.

The fiscal year 2011 budget request of \$2.4 billion, an increase of 5 percent over fiscal year 2010, is aimed at accelerating revolutionary change in the Nation's energy economy. The request includes programs associated with meeting the President's goals of investing in the next generation of clean energy technologies, vehicles and fuels, and energy efficiency measures that reduce energy use in Federal agencies and the industrial and building sectors.

Clean, Renewable Energy Generation

The fiscal year 2011 budget request continues to work to transform the Nation's energy infrastructure by investing over \$650 million in a variety of renewable sources of electrical generation such as solar (\$302 million, a 22 percent increase over fiscal year 2010), and wind (\$123 million, a 53 percent increase over fiscal year 2010), as well as deploy clean technologies to reduce our dependence on oil. The request includes expansions on Concentrating Solar Power, biopower and off-shore wind, which will provide new, additional avenues for clean energy development and deployment. These technologies will reduce the production of greenhouse gas emissions and revitalize an economy built on the next generation of domestic production.

Energy Efficiency

The Department implements a number of efforts to increase energy efficiency and conservation in homes, transportation, and industry. The fiscal year 2011 budget requests \$758 million to accelerate deployment of clean, cost-effective, and rapidly deployable energy conservation measures in order to reduce energy consumption in residential and commercial buildings, and the industrial and Federal sectors. The Department will invest \$231 million in the Building Technologies program, a 16 percent increase over fiscal year 2010 for built environment R&D. Federal assistance for State-level programs such as State Energy Program grants (\$75 million) and Weatherization Assistance Program (\$300 million), will continue to help citizens implement energy conservation measures, lower energy costs and greenhouse gas emissions, and build a technical workforce. The fiscal year 2011 request also includes \$545 million to accelerate research, development and deployment of advanced fuels and vehicles to reduce the use of petroleum and greenhouse gas emissions. The fiscal year 2011 budget complements the Recovery Act funding for these programs (\$3.1 billion for State Energy Programs, \$5 billion for Weatherization Assistance, \$2 billion for Advanced Battery Manufacturing and \$400 million for Transportation Electrification).

Office of Electricity Delivery and Energy Reliability—Moving Toward a More Intelligent Grid to Power the Digital Economy

The fiscal year 2011 budget request for the Office of Electricity Delivery and Energy Reliability (OE) budget is \$186 million, an increase of 8 percent over fiscal year 2010. These funds will build on the “Smart Grid” investments and other activities.

The ability of the United States to meet the growing demand for reliable electricity is challenged by an aging power grid under mounting stress. Despite the increasing demand for reliable power brought on by the modern digital economy, the power grid in the United States has suffered from a long period of underinvestment. Much of the power delivery system was built on technology developed over 50 years ago and thus responds to disturbances with speed limited by the technology of that period. This limitation increases the vulnerability of the power system to outages that can spread quickly and impact whole regions. Breakthroughs in digital network controls, transmission, distribution, and energy storage will make the power grid more efficient, alleviating the stress on the system, as well as enable greater use of clean and distributed energy sources. The return on these investments will come from a reduction in economic losses caused by power outages and the delay or avoidance of costly investment in new generation and transmission infrastructure.

The budget request provides \$144 million for research and development, which supports development of technologies that will improve the reliability, efficiency, flexibility, functionality, and security of the Nation’s electricity delivery system. It accelerates investment in energy storage capabilities and funds two new research initiatives: Advanced Modeling Grid Research, to develop grid-modeling capabilities using the large volumes of data generated by advanced sensors deployed on the grid; and Power Electronics, to develop new power control devices in collaboration with universities. The proposal also continues to support the development of “Smart Grid” technologies and cyber security systems for the power grid.

The budget request continues support for Permitting, Siting, and Analysis (\$6.4 million) to assist States, regional entities, and other Federal agencies in developing policies and programs aimed at modernizing the power grid; and for Infrastructure Security and Energy Restoration (\$6.2 million) to enhance the reliability and resiliency of U.S. critical infrastructure and facilitate its recovery from energy supply disruptions.

Office of Environmental Management—Reducing Risks and Making Progress

The mission of the Office of Environmental Management (EM) is to complete the safe cleanup of the environmental legacy brought about from over six decades of nuclear weapons development, production, and Government-sponsored nuclear energy research. This cleanup effort is the largest in the world, originally involving 2 million acres at 107 sites in 35 states, dealing with some of the most dangerous materials known to man.

EM continues to pursue its cleanup objectives within the overall framework of achieving the greatest comparative risk reduction benefit and overlaying regulatory compliance commitments and best business practices to maximize cleanup progress. To support this approach, EM has prioritized its cleanup activities:

- Activities to maintain a safe and secure posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Used nuclear fuel storage, receipt, and disposition
- Special nuclear material consolidation, processing, and disposition
- High priority groundwater remediation
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning

The fiscal year 2011 budget request for \$6.0 billion will fund activities to maintain a safe and secure posture in the EM complex and make progress against program goals and compliance commitments, including reduction of highest risks to the environment and public health, use of science and technology to reduce life cycle costs, and reduction of EM’s geographic footprint by 40 percent by 2011. EM continues to move forward with the development of the capability for dispositioning tank waste, nuclear materials, and used nuclear fuel. The budget request includes the construction and operation of three unique and complex tank waste processing plants to treat approximately 88 million gallons of radioactive tank waste for ultimate disposal. It will also fund the solid waste disposal infrastructure needed to support disposal of transuranic and low-level wastes generated by high-risk activities and the footprint reduction activities. In addition to the fiscal year 2011 budget request, EM will continue to expend the \$6 billion in Recovery Act funding provided by Congress to complete lower-risk footprint reduction and near-term completion cleanup activities.

EM carries out its cleanup activities with the interests of stakeholders in mind. Most importantly, EM will continue to fulfill its responsibilities by conducting clean-up within a “Safety First” culture that integrates environment, safety, and health requirements and controls into all work activities to ensure protection to the workers, public, and the environment, and adheres to sound project and contract management principles. EM is also strengthening its project and planning analyses to better assess existing priorities and identify opportunities to accelerate cleanup work. Working collaboratively with the sites, EM continues to seek aggressive but achievable strategies for accelerating cleanup of discrete sites or segments of work. In addition, functional and cross-site activities such as elimination of specific groundwater contaminants, waste or material processing campaigns, or achievement of interim or final end-states are being evaluated.

After the EM program completes cleanup and closure of sites that no longer have an ongoing DOE mission, post closure stewardship activities are transferred to the Office of Legacy Management (LM). LM also receives sites remediated by the U.S. Army Corps of Engineers (Formerly Utilized Sites Remedial Action Program) and private licensees (Uranium Mill Tailings Radiation Control Act, title II sites). 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 post-retirement benefits for contractor retirees.

The administration has determined that developing a repository at Yucca Mountain, Nevada, is not a workable option and has decided to terminate the Office of Civilian Radioactive Waste Management (RW). The Nation needs a different solution for nuclear waste disposal. As a result, in 2010, the Department will discontinue its application to the U.S. Nuclear Regulatory Commission for a license to construct a high-level waste geologic repository at Yucca Mountain and establish a Blue Ribbon Commission to inform the administration as it develops a new strategy for nuclear waste management and disposal. All funding for development of the Yucca Mountain facility and RW will be eliminated by the end of fiscal year 2010. The administration remains committed to fulfilling its obligations under the Nuclear Waste Policy Act. The Office of Nuclear Energy will develop an integrated approach to improve the waste management options for the Nation and support the Blue Ribbon Commission. Ongoing responsibilities under the Nuclear Waste Policy Act, including administration of the Nuclear Waste Fund and the Standard Contract, will continue under the Office of Nuclear Energy, which will lead future waste management activities.

Innovative Technology Loan Guarantee Program and Advanced Technology Vehicle Manufacturing Program—Supporting Investment in Innovation and Manufacturing

To encourage the early commercial production and use of new or significantly improved technologies in energy projects, the Department is requesting an additional \$36 billion in authority to guarantee loans for nuclear power facilities and \$500 million in appropriated credit subsidy for the cost of loan guarantees for renewable energy systems and efficient end-use energy technology projects under section 1703 of the Energy Policy Act of 2005. The additional loan authority for nuclear power projects will promote near-term deployment of new plants and support an increasing role for private sector financing. The additional credit subsidy will allow for investment in the innovative renewable and efficiency technologies that are critical to meeting the administration’s goals for affordable, clean energy, technical leadership, and global competitiveness.

The fiscal year 2011 budget also requests \$58 million to evaluate applications received under the eight solicitations released to date and to ensure efficient and effective management of the Loan Guarantee Program. This request will be offset by collections authorized under title XVII of the Energy Policy Act of 2005 (Pub. L. 109–8).

The Advanced Technology Vehicle Manufacturing program requests \$10 million to support ongoing loan and loan monitoring activities associated with the program mission of making loans to automobile and automobile part manufacturers for the cost of re-equipping, expanding, or establishing manufacturing facilities in the United States to produce advanced technology vehicles or qualified components, and for associated engineering integration costs.

Office of Nuclear Energy—Investing in Energy Security and Technical Leadership

The Department is requesting \$912 million for the Office of Nuclear Energy (NE) in fiscal year 2011—an increase of 5 percent over the fiscal year 2010 enacted level.

NE's funding supports the advancement of nuclear power as a resource capable of meeting the Nation's energy, environmental, and national security needs by resolving technical, cost, safety, proliferation resistance, and security barriers through research, development, and demonstration as appropriate.

Currently, nuclear energy supplies approximately 20 percent of the Nation's electricity and over 70 percent of clean, non-carbon producing electricity. Over 100 nuclear power plants are offering reliable and affordable baseload electricity in the United States, and they are doing so without air pollution and greenhouse gas emissions. NE is working to develop innovative and transformative technologies to improve the competitiveness, safety and proliferation resistance of nuclear energy to support its continued use.

The fiscal year 2011 budget supports a reorganized and refocused set of research, development, and demonstration (RD&D) activities. This program is built around exploring, through RD&D: technology and other solutions that can improve the reliability, sustain the safety, and extend the life of current reactors; improvements in the affordability of new reactors to enable nuclear energy to help meet the administration's energy security and climate change goals; understanding of options for nuclear energy to contribute to reduced carbon emissions outside the electricity sector; development of sustainable nuclear fuel cycles; and minimization of risks of nuclear proliferation and terrorism.

NE is requesting \$195 million for Reactor Concepts Research, Development and Deployment. This program seeks to develop new and advanced reactor designs and technologies. Work will continue on design, licensing and R&D for the Next Generation Nuclear Plant to demonstrate gas-cooled reactor technology in the United States. The program also supports research on Generation IV and other advanced designs and efforts to extend the life of existing light water reactors. In fiscal year 2011, NE will initiate a new effort focused on small modular reactors, a technology the Department believes has promise to help meet energy security goals.

The fiscal year 2011 request includes \$201 million for Fuel Cycle Research and Development to perform long-term, results-oriented science-based R&D to improve fuel cycle and waste management technologies to enable a safe, secure, and economic fuel cycle. The budget also requests \$99 million to support a new R&D program, Nuclear Energy Enabling Technologies, focused on the development of cross-cutting and transformative technologies relevant to multiple reactor and fuel cycle concepts. The Crosscutting Technology Development activity provides crosscutting R&D support for nuclear energy concepts in areas such as reactor materials and creative approaches to further reduce proliferation risks. The Transformative Nuclear Concepts R&D activity will support, via an open, competitive solicitation process, investigator-initiated projects that relate to any aspect of nuclear energy generation including, but not limited to, reactor and power conversion technologies, enrichment, fuels and fuel management, waste disposal, and nonproliferation, to ensure that good ideas have sufficient outlet for exploration.

The Energy Innovation Hub for Modeling and Simulation will apply existing modeling and simulation capabilities to create a "virtual" reactor user environment to simulate an operating reactor. NE will also continue its commitments to investing in university research, international cooperation, and the Nation's nuclear infrastructure—important foundations to support continued technical advancement.

Office of Fossil Energy—Abundant and Affordable Energy for the 21st Century

The fiscal year 2011 budget request of \$760 million for the Office of Fossil Energy (FE) will help ensure that the United States can continue to rely on clean, affordable energy from traditional domestic fuel resources. The United States has 25 percent of the world's coal reserves, and fossil fuels currently supply 86 percent of the Nation's energy.

The Department is committed to advancing Carbon Capture and Storage (CCS) technologies in order to promote a cleaner and more efficient use of fossil fuels. In addition to significant Recovery Act funds, Advanced CCS with \$438 million requested in fiscal year 2011 is the foundation of the Department's clean coal research program which seeks to establish the capability of producing electricity from coal with near-zero atmospheric emissions.

In addition, \$150 million of FE's \$760 million request will be used to promote national energy security through the continued operations of both the Strategic Petroleum Reserve and Northeast Home Heating Oil Reserve programs. These programs protect the Nation and the public against economic damages from potential disruptions in foreign and domestic petroleum supplies.

Energy Information Administration—Providing Independent Statistics and Analysis

The fiscal year 2011 request for the Energy Information Administration (EIA) is \$128.8 million, which is an \$18.2 million increase over the fiscal year 2010 current appropriation. EIA conducts a comprehensive data collection program through more than 60 surveys that cover the full spectrum of energy sources, end uses, and energy flows; generates short- and long-term domestic and international energy projections; and performs informative energy analyses. EIA disseminates its data products, analyses, reports, and other information services to customers and stakeholders primarily through its Web site.

The increased funding improves EIA's capability to close energy information gaps, strengthen analysis, and address significant data quality issues. It provides for an expanded survey of energy consumption in commercial buildings that will provide more baseline information critical to understanding energy use. That survey also is a basis for benchmarking and performance measurement for energy efficiency programs. The budget request also provides for: expanded analysis of energy market behavior and data to address the increasingly important interrelationship of energy and financial markets; continued implementation of improvements in data coverage, quality and integration; upgrades to the National Energy Model; and initiation of efforts to track and analyze the adoption of "Smart Grid" technologies and dynamic electricity pricing plans.

The National Nuclear Security Administration—Ensuring America's Nuclear Security and Reducing the Global Threat of Nuclear Proliferation

The National Nuclear Security Administration (NNSA) continues significant efforts to meet administration priorities, leveraging science to promote U.S. national security objectives. The fiscal year 2011 President's budget request is \$11.2 billion, an increase of 13 percent from the enacted fiscal year 2010 appropriation. The fiscal year 2011–2015 President's Request for the NNSA is a significant funding increase over fiscal year 2010 levels, reflecting the President's priorities on global nuclear nonproliferation and for strengthening the nuclear security posture of the United States to meet defense and homeland security-related objectives:

- Broaden and strengthen the NNSA's science, technology and engineering mission to meet national security needs
- Work with global partners to secure all vulnerable nuclear materials around the world within 4 years
- Work toward a world with no nuclear weapons. Until that goal is achieved, ensure the U.S. nuclear deterrent remains safe, secure and effective
- Transform the Nation's cold-war era weapons complex into a 21st century national security enterprise
- Provide safe and effective nuclear propulsion for U.S. navy warships

The fiscal year 2011 budget request of \$7.01 billion for the Weapons Activities appropriation provides funding for a wide range of programs. Some activities provide direct support for maintaining the nuclear weapon stockpile, including stockpile surveillance, annual assessments, life extension programs, and warhead dismantlement. Science, Technology and Engineering programs are focused on long-term vitality in science and engineering, and on performing R&D to sustain current and future stockpile stewardship capabilities without the need for underground nuclear testing. These programs also provide a base capability to support scientific research needed by other elements of the Department, to the Federal Government national security community, and the academic and industrial communities. Infrastructure programs support facilities and operations at the Government-owned, contractor-operated sites, including activities to maintain and steward the health of these sites for the long term. Security and counterterrorism activities leverage the unique nuclear security expertise and resources maintained by NNSA to other Departmental offices and to the Nation.

The Weapons Activities request is an increase of 9.8 percent over the fiscal year 2010 enacted level. This level is sustained and increased in the later out-years. The multi-year increase is necessary to reflect the President's commitment to maintain the safety, security and effectiveness of the nuclear deterrent without underground nuclear testing, consistent with the principles of the Stockpile Management Program outlined in section 3113(a)(2) of the National Defense Authorization Act of fiscal year 2010 (50 U.S.C. 2524). Increases are provided which directly support of the nuclear weapon stockpile, for scientific, technical and engineering activities related to maintenance assessment and certification capabilities, and for recapitalization of key nuclear facilities. The President's request provides funding necessary to protect the human capital base at the national laboratories—including the ability to design and certify nuclear weapons—through a stockpile stewardship program that fully exercises these capabilities. Security and nuclear counterterrorism activities de-

crease about 3 percent from the fiscal year 2010 appropriated levels, leveraging the continuing efficiencies in the Defense Nuclear Security budget.

The fiscal year 2011 request for Defense Nuclear Nonproliferation is \$2.7 billion, an increase of 25.8 percent over the fiscal year 2010 appropriation. The increase is driven by the imperative for U.S. leadership in nonproliferation initiatives both here and abroad. In addition to the programs funded solely by the NNSA, our programs support the Department of Energy mission to protect our national security by preventing the spread of nuclear weapons and nuclear materials to terrorist organizations and rogue states. These efforts are implemented in part through the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, formed at the G8 Kananaskis Summit in June 2002, and the Global Initiative to Combat Nuclear Terrorism, launched in Rabat, Morocco, in October 2006.

The fiscal year 2011 President's request for International Nuclear Materials Protection and Cooperation reflects selective new security upgrades to buildings and areas that were added to the cooperation after the Bratislava Summit, additional Second Line of Defense sites, and sustainability support for MPC&A upgrades. The Global Threat Reduction Initiative increases by 68 percent in support of the international effort to secure vulnerable nuclear materials around the world within 4 years. The Fissile Materials Disposition program increases by 47 percent reflecting continuing domestic construction of the MOX Fuel Fabrication Facility and the Waste Solidification Building, as well as design documentation for a related pit disassembly and conversion capability. A portion of the funding increase results from the transfer of funding associated with the latter activity from the Weapons Activities appropriation starting in 2011.

The President's request of \$1.1 billion for Naval Reactors is an increase of 13.3 percent over the fiscal year 2010 appropriated level. The program supports the U.S. Navy's nuclear fleet, comprised of all of the Navy's submarines and aircraft carriers, including 52 attack submarines, 14 ballistic missile submarines, 4 guided missile submarines, and 11 aircraft carriers. These ships are relied on every day, all over the world, to protect our national interests. Starting in fiscal year 2010, there are major new missions for the NNSA Naval Reactors program. A significant funding increase is requested for the OHIO Class submarine replacement and for the related activity which will demonstrate new submarine reactor plant technologies as part of the refueling of the land-based prototype reactor. R&D is underway now, and funding during this Future Years Nuclear Security Program is critical to support the long manufacturing spans for procurement of reactor plant components in 2017, and ship procurement in 2019. Resources are also included in fiscal year 2011 to support commencement of design work for the recapitalization of used nuclear fuel infrastructure.

The Office of the Administrator appropriation provides for Federal program direction and support for NNSA's Headquarters and field installations. The fiscal year 2011 request is \$448.3 million, a 6.5 percent increase over the fiscal year 2010 appropriation. This provides for well-managed, inclusive, responsive, and accountable organization through the strategic management of human capital, enhanced cost-effective utilization of information technology, and integration of budget and performance through transparent financial management practices.

Management—Transforming the Culture of the Department with a Results-Oriented Approach

To transform the way Americans use and produce energy, we need to transform the Department of Energy. Because the mission of the Department is vital and urgent, it must be pursued using a results-oriented approach that is safe, fiscally responsible, and legally and ethically sound. The Department has developed strong management and oversight capabilities during implementation of the Recovery Act, and these lessons will be applied to the fiscal year 2011 budget. The budget request of \$337 million for corporate management includes \$75 million for the Office of Management, \$102 million for the Office of the Chief Information Officer, \$43 million for the Inspector General's office, \$62.7 million for the Office of the Chief Financial Officer, \$37 million for the Office of General Counsel, and \$2 million for Management Reform within the Office of the Secretary. The Management Reform effort will provide the Department with strategic direction, coordination, and oversight of management initiatives. The primary mission of this new office is to identify operational efficiencies to free up resources for priority mission activities. The Department is also requesting \$12 million for a new Acquisition Workforce Improvement initiative which will be utilized to increase the size and improve the training of our acquisition professionals.

The Department's human capital management efforts are focused on an integrated approach that ensures human capital programs and policies are linked to the

Department's missions, strategies, and strategic goals, while providing for continuous improvement in efficiency and effectiveness. To accomplish this goal, the Department will develop different strategies to attract, motivate and retain a highly skilled and diverse workforce to meet the future needs of the Nation in such vital areas as scientific discovery and innovation.

To improve stewardship of taxpayer dollars, the Department will continue to issue audited financial statements in an accelerated timeframe and provide assurance that the Department's financial management meets the highest standards of integrity. The Department's fiscal year 2009 financial statements were reviewed by independent auditors and received an unqualified opinion. This was made possible by implementing an aggressive plan to mitigate and remediate a number of financial management challenges that were identified by the Department and its independent auditors. In addition, the Department continues to strengthen the execution of program funding dollars by having regular execution reviews that will ensure funding is processed, approved and spent quickly and responsibly. The Department in fiscal year 2011 will continue its effort to build and improve its integrated business management system.

The Department is continuing to make progress in improving project management and is implementing an action plan with scheduled milestones and aggressive performance metrics. The focus of the action plan is to successfully address the root causes of the major challenges to planning and managing Department projects. The action plan identifies eight measures that, when completed, will result in significant, measurable, and sustainable improvements in the Department's contract and project management performance and culture.

To improve financial performance in project management, the Department has increased the use of Earned Value Management (EVM) techniques within program offices. These techniques objectively track physical accomplishment of work and provide early warning of performance problems. A certification process was instituted for contractors' EVM systems to improve the definition of project scope, communicate objective progress to stakeholders and keep project teams focused on achieving progress. Currently, 70 percent of the Department's capital asset projects have certified EVM systems.

The Department continues to strengthen information technology management by consistent execution of robust IT Capital Planning and Investment Control oversight and reporting processes designed to ensure successful investment performance, including the use of EVM Systems as appropriate, and the remediation of poorly performing investments. Through the establishment and use of an Enterprise Architecture that aligns to the Federal Enterprise Architecture, the Department has ensured that all IT investments follow a comprehensive Modernization Roadmap.

The Department continues to take significant actions to improve its cyber security posture by implementing its Cyber Security Revitalization Plan to address longstanding, systemic weaknesses in the Department's information and information systems. Specifically, the Department seeks to ensure that 100 percent of operational information technology systems are certified and accredited as secure and that the Department's Inspector General has rated the certification and accreditation process as "satisfactory." Additional steps will be taken to ensure that electronic classified and personally identifiable information are secure.

CONCLUSION

I appreciate the opportunity to appear before you to present the fiscal year 2011 budget request for the Department of Energy. I will be happy to take any questions that members of the subcommittee may have.

Senator DORGAN. Mr. Secretary, thank you very much.

I have a number of questions, and I assume I will not get through all of them. But let me try to see if we can determine what is happening here.

FUTUREGEN

This subcommittee has been wrestling with the question of FutureGen. Is it on? Is it off? Does it need to be funded? Does it not? If so, how will the money be used? So where are you on the decisionmaking process about FutureGen?

Secretary CHU. We are working with the alliance. We put an offer to the alliance and we are working with them in hopes that

they can come up with the necessary assets needed. This is in progress. We have extended the deadline because we are going to give them more time, but I think the deadline is coming up in the next couple weeks and then we will have to make a determination at that time.

Senator DORGAN. Do you feel that we are losing time, though? FutureGen was sort of the new thing. As I indicated in my opening statement, we have a significant need to do the research to try to evaluate how we build electric generating plants that are going to capture carbon and do certain things with it. We have, obviously, lost time because the previous administration at one point decided to discontinue it, shut it down, and your administration has now for a year or so been trying to study it.

Secretary CHU. Not so much trying to study it, trying to see if the alliance can put together a proposal that would be acceptable.

But let me also say that I share your sense of urgency in getting carbon capture and sequestration technologies going. It is our stated goal that perhaps within 8–10 years, this would be ready for deployment and something that is economically viable.

We have, through the Recovery Act—and this reflects the comments both you and Ranking Member Bennett made—invested over \$4 billion in several pilot plants or pilot plant demonstrations, experiments for carbon capture and sequestration. The good news is that \$4 billion has been matched by \$6 billion or \$7 billion of private sector money. So we know that the private sector has also gotten interested and committed to this.

There are a number of projects now that are becoming competitive with FutureGen in the sense of the amount of carbon sequestered and things like that. We still want FutureGen to go forward, but it really depends on whether this package—

Senator DORGAN. But in a broader sense, do you feel like the reduction in funds in the fossil energy account reflects less attention to and less interest in that area of energy?

Secretary CHU. No, we do not. There is essentially \$4 billion plus \$6 billion—\$10 billion total investment in various forms of carbon capture and sequestration. In the following budget you will see an increase as we work through those demonstrations.

ELECTRIC VEHICLES

Senator DORGAN. Let me ask about electric vehicles. Senator Alexander and I and others are putting together an electric vehicles piece of legislation. We have been working on it and are, I think, fairly close to introducing it.

The President set a goal of having 1 million electric vehicles on the road by 2015. What are the things that you are doing and what should we see in this budget that reflects that? What percent of the advanced vehicle technology budget is going into electric drive vehicles, for example?

Secretary CHU. We are investing a considerable amount in electric vehicles. As you know, the single most important thing is a better battery, a battery with higher energy density, a battery with higher energy per unit volume, and a battery that lasts the life of the car, let us say, 15 years if it moderately discharges, and a battery that costs a lot less.

I would see a big up-tick, a significant up-tick in the market when we have that battery. I am optimistic that we will have the battery like that, but whether it is 1 year, 2 years, 3 years from today I do not know. We are heavily investing in battery research. The goal of the hub proposed for fiscal year 2011 is to get a battery that is dramatically better than the ones being prototyped today.

But in addition to that, we are also investing in advanced battery manufacturing. This is something where the United States has fallen off, even though we actually invented a lot of the technology that went into the lithium ion battery, it was perfected by Sony. If you buy a hybrid car today, 98 percent of the high technology batteries will have been manufactured in Asia. With the Advanced Battery Manufacturing Technology grants we have been giving, we hope to recapture a lot of that market.

Senator DORGAN. But that is true of almost everything we invent. It migrates very quickly. In the last 20 years, what we have seen is a mass migration of that which we invent to be produced elsewhere.

BIOFUEL BLENDS

Can you describe what you expect to see happen with the testing of higher biofuel blends, particularly E15, on vehicles. When do you think the administration can give us an answer on that, and what about legacy vehicles?

Secretary CHU. I personally looked into this several months ago to try to see what we could do to accelerate the testing. There are a number of models we wanted to test and you have to put on a significant number of miles to test the vehicles. So the testing is going 24/7. I think it is going to be sometime late spring, maybe early summer where we can make a determination whether E15 would be viable in the vehicles.

We are also testing deployed vehicles. And so that is the real issue, whether this 15 percent blend would do something that would affect the long-term and make the cars last as long as they initially would have.

So perhaps by late spring, we will be done. That is what I recall from the last time I looked.

Senator DORGAN. All right.

HYDROGEN AND FUEL CELL TECHNOLOGIES

Finally, for hydrogen and fuel cell technologies, as you know, you are proposing a cut. Last year you proposed the elimination of all of those accounts. I think we are going to shut down 190, roughly, contracts. You are proposing a cut.

You know, the hydrogen fuel cell vehicle is run on electricity. As we move toward an electric-drive system, it seems to me the continued work in hydrogen fuel cells is very important work.

Can you provide for the subcommittee a summary of existing programs that would be discontinued or significantly scaled back in order to make these cuts possible?

Secretary CHU. Yes, I will do that.

There was a difference of opinion last year. We have increased the hydrogen technology request over fiscal year 2010, but it is still

a decrease from what was appropriated. We are minimizing the discontinuity in the existing programs.

I might say privately among some of the technical people in the oil companies, they recognize that this is something that might be 20 years plus away from a mass adoption. And so I am entering discussions privately with them to say, okay, can you start to band together because it is something so far in the future it makes sense to have consortiums work on it.

Senator DORGAN. Yes. Except as a scientist, you know that that which seems far into the future becomes nearer and nearer the more work is done, and often we discover that the future was much closer than we thought and I would expect that to be the case here as well.

I have many questions, but again, my colleagues are here and I want them to have time for questions. So I will submit questions in writing to you, and as I indicated, I have to go to the White House for a signing ceremony, so when I leave, Senator Tester will take the chair.

But, Senator Bennett, did you wish to inquire?

Senator BENNETT. Yes. Thank you very much, Mr. Chairman.

WEATHERIZATION GRANTS

Going down the list, I outlined in my opening statement let us talk about weatherization grants and why is the pace so slow in getting these funds out, and why are there still unresolved tax issues for the smart grid grantees, more than a year later after we enacted that?

The big question, why is the Department requesting any funds for weatherization grants when you have \$4.5 billion from the Recovery Act, in addition to the fiscal year 2009 and fiscal year 2010 appropriations that have piled up that have not been spent? You have got more than \$5 billion in total, and yet you are asking for more with all of these delays. Can you help us understand all that?

Secretary CHU. Well, it is not that we wanted to put pain on ourselves.

Seriously, let me tell you about the weatherization grants. As you noted, it was \$5 billion. It is a formula block grant. It goes to States.

There were beginning hiccups. The biggest hiccup was the Davis-Bacon wage issue. That had to be resolved with cooperation from the Labor Department. The Davis-Bacon issues took a longer time than either Departments had expected, but those are resolved.

So what has happened up until the end of 2009, I will agree with you that initial progress was slow. Starting in September 2009, we started urging the States and tried to help them accelerate their costing of the funds. We believe that apart from a few States, they are getting on track to up the spending. This is demonstrated by what we now have in January.

We went from quarterly reporting to monthly reporting. There was resistance both by the States and by others, Paperwork Act issues. But what we found is, as we started to move into monthly reporting, those States that were the furthest behind actually started to move.

So a number of things like that were holding us up.

There is an IG report that perhaps you have read which I think gives a very balanced view of why initial progress was delayed. It does indicate that the Department of Energy was doing everything within its power over the last 6 months to help the States get this money out.

Now, in answer to your question, why are we asking for more weatherization money—there are other programs we have now begun. The weatherization money is for low-income housing. It will weatherize within the low-income housing sector, perhaps 500,000 to 600,000 homes. The sector in the United States—there are 130 million homes of which probably 80 million to 90 million homes could benefit from weatherization.

What we are now trying to do is start programs that will be largely highly leveraged, ideally self-financed because energy efficiency really does mean energy savings. And we want to start programs and we are beginning to pilot some of these with our current weatherization money to get this going in the United States.

So ultimately, we feel that energy efficiency should be a social norm, but fundamentally it saves money and that money goes in the pockets of homeowners and businesses and it goes back into the economy.

Very quickly, the tax issue with the Smart Grid is being resolved. That is something we have to negotiate with Treasury and other agencies. We hope, perhaps within a few weeks, that will be completely resolved and we can go forward.

Senator BENNETT. Okay.

Well, do you still think then that the appropriations you are asking for is necessary to reach that goal? And with all the money you have still got, you—

Secretary CHU. Yes. Despite the slow start, the goal we have is that by 2011, mid-2011, we will have costed the money. It has essentially all been allocated.

But again, it takes time to start these programs. Once these programs have ramped up, you have got people. You have got caulkers. You have got insulators. You have got energy auditors out there. You want to keep the momentum going. We have ramped up. And we need to sustain that.

Senator BENNETT. Is there a ceiling? You talk about primarily low-income housing. Is there an income ceiling where we say, well, if you earn this much, the Feds will not weatherize your home? That is your responsibility.

Secretary CHU. In the current weatherization statute, there is. It is 200 percent above the poverty level. And most middle-income homes cannot be touched by that. And so that is, again, why we think eligibility for weatherization funding essentially could be expanded to mid- to low-income housing.

Senator BENNETT. I have some constituents that will raise questions about the constitutionality of that.

Secretary CHU. Of the Recovery Act?

Senator BENNETT. No, of saying, okay, the Federal Government will use Federal power and Federal dollars to do this for one portion of the citizenship and not the other. But that is a constitutional question for another time.

Secretary CHU. Right. By the way, that is in the Recovery Act. The weatherization program we are proposing does not have that ceiling.

Senator BENNETT. Okay.

LOAN GUARANTEES

Let us talk about the loan guarantees. DOE had planned to make a minimum of 21 condition commitments for projects supported under the Recovery Act by the end of 2009. Instead, you have made a total of four, and you made some additional commitments since then but still far short of the target.

Can you tell us what the problems are there in terms of meeting the plan—

Secretary CHU. Sure.

Senator BENNETT [continuing]. And what steps are being taken?

Secretary CHU. If you include the Advanced Technology Vehicle Manufacturing loans, I believe we are up to 11 since the first conditional loan was announced to Solyndra. As you pointed out, the loan program was authorized in 2005. I believe it was appropriated in the beginning of 2006. And when my team took over in 2009, not a single loan had gone out. So we have made 11. There are more in the pipeline to be announced soon. We are spending a lot of time thinking about it—so we went from 0 to 11 or so.

We are examining how to streamline the processes. There are issues in terms of legislative fixes. For example, the 1705 loan program, could also allow loans to energy efficiency technologies and energy efficiency companies. Right now it is limited to renewable energies—because there are a number of loan applicants that we think would be well qualified.

The issues with the loan programs are fundamentally, given the way it is constructed, we are obligated to protect the taxpayer, which means that there are negotiations to find out what these companies have in their assets, and assess the ability of the companies to repay the loans. For example, if one compares the first nuclear loan we gave, which these are solid companies with a lot of assets, minimal credit subsidies are required. So those loans we believe are very solid. The probability of payback, costing nothing to the taxpayer, is quite high. In fact, we have made the case to OMB that it will cost nothing to the taxpayer.

Senator BENNETT. Let me give you a particular example. AREVA in Idaho submitted an application years ago for a front-end nuclear fuel project, was given every indication, I understand, back in October that due diligence had been completed and word would be coming any day. And now we are in March and they are still waiting.

Do you have any idea why that particular one has been held up so much? That is in the West in the area where I am concerned.

Secretary CHU. We are closing in on that. To be quite candid, sometimes the delays surprise me a little bit, but until I get into what the delays are about, the nuclear loans—I personally thought the first nuclear loan could have been announced—I thought it would have been announced by November. So these are very big deals, hundreds of millions of dollars to billions of dollars, and there are complications. But we are closing in on the AREVA one as quickly as we can.

Senator BENNETT. Thank you, Mr. Chairman.

Senator DORGAN. Thank you, Senator Bennett. We will come back to you if you have additional questions.

Senator Reed, I want to go to you and then Senator Tester has indicated he will close. We will come back to Senator Bennett. But Senator Tester is going to close the hearing as well. So we will have ample time at the end of the hearing.

Senator Reed.

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

And thank you, Mr. Secretary.

OFFSHORE WIND POWER

As you know—and we have had a chance to talk about the aspects of this—my State, Rhode Island, is deeply committed to wind power, offshore wind power, not only for environmental reasons, but also for economic reasons. We have 13 percent unemployment and this could be a way to help us move forward in the future. The State, through the great help of the chairman, has received money to conduct an ocean special area management plan to assist in siting offshore wind projects. They are well positioned to do that. They have a selected contractor, Deepwater Wind, and we hope we can do this. We are working hard with not only DOE but also the Minerals Management Service and the Department of Transportation. We have got a grant for a shore-side facility that could be a fabrication point.

But I was heartened to see that your budget includes \$49 million for offshore wind technology. Can you just generally elaborate on what you would like to do with that? And frankly, if you would like to help us, that would be even better.

Secretary CHU. The reason we have asked for this budget is because we believe there are a lot of resources in offshore wind. Now, the down side of offshore wind, as you well know, is that the maintenance of it is much more costly. The up side is that the newer turbines are getting more and more reliable. But fundamentally, you really want those turbines to have a mean time of failure that pushes 20 years because once the turbine goes down because of the choppy seas, it becomes very expensive to fix, and you cannot fix it immediately. You have to wait for proper conditions.

But having said all that, the United States has incredible resources in offshore wind, both off the Atlantic coast and in some of the Great Lakes areas. We do anticipate that the reliability of these large turbines is going to get better and better and better. So we think it is now time to start getting this piloting going to nurture it along.

Senator REED. Can you comment upon your coordination with the Minerals Management Service, with NOAA, and with the other agencies, the stakeholders? Are you working actively with them in a—

Secretary CHU. Well, certainly the primary coordination is with Interior and Secretary Salazar because the Interior actually controls that land. But we are very keen on trying to get this developed in a timely manner but that makes good economic sense as well. But as I said, we think it is going in the right direction. The other thing I should add is there are two other things that are good

about offshore wind. First, they are closer to population centers, and second, you actually have a higher what I call duty cycle. The wind is steadier in the oceans. So the capital investment, the nameplate, electricity generation of a turbine offshore—you can actually reap more electrical power over a period of time.

Senator REED. Thank you.

I know that your Assistant Secretary, Ms. Zoi, is very much interested in this, and I would encourage her to contact Rhode Island, perhaps even visit, to see what we are doing. That might help sort of this whole process of coordination.

INTERNATIONAL WIND POWER TECHNOLOGY

My final point—and this has been an issue that has come up in the context of the recovery plan. Because other nations have been much more aggressive in promoting wind power, the consequence is that they have a lot of this technology. We are sort of in an unfortunate position of trying to harness wind but having to rely upon foreign-produced and fabricated turbines, towers, et cetera.

One of the questions is not only getting the wind towers up but how can we help jump start the industry here in the United States. In the longer term, we want the good, clean energy but we want the jobs as well. Is that consciously being considered by you and your colleagues?

Secretary CHU. Very much so. Thank you for giving me this opportunity to explain some of this.

Because of long-term fiscal policies in Europe in the 1980s and 1990s, the technology for wind migrated from our shores to Europe, Germany, and Denmark in particular. Right now, as we show that the United States is getting serious about deploying wind that migration is reversing. So what is happening is many of these companies—for example, Vestas. I toured a Vestas plant. They are investing hundreds of millions of dollars and plan up to \$2 billion of investment in Colorado to serve the entire North American region.

Now, it is Vestas-United States. Right now, the value of the turbines being produced in Vestas is over 50 percent. It is something like 60 percent of all the material is being produced in the United States with their goal of getting it over 80–90 percent.

There is a very sound, economical reason why they want to do this. You want to set up a manufacturing plant where the market is stable so the company is not liable to currency swings. It is a more predictable business model. You want to set up local supply chains because it actually makes good sense. It is less costly.

They said the only aspect where they do not think they can have a U.S. supplier, but it might take a year or two, is the paint. They have to get the paint from Germany. This is a very special, long-lived, very durable paint. But they said we are trying to qualify some U.S. paints.

So the idea of these companies—it just like GM makes a manufacturing plant in China. They have the same motivation. Currency swings, local suppliers, all these other things. So if the United States puts in fiscal policies that allow a market to flourish, the manufacturing will naturally migrate to the United States and the parts will migrate to the United States. So I think there is a lot of people out there who say, well, wait a minute. This is a foreign

company. But you know—all the labor and the installation will be in the United States. If 80 percent, 70 percent of the parts are in the United States, which is not that dissimilar from you buy a car from Chrysler and ask how many parts are made in the United States. It could be 70 percent, maybe 80 percent.

So what happens is that is sort of the goal we are going to, and that is actually what these wind manufacturers want to do as well. So again, a market pool means they will invest in the United States which means jobs in the United States.

Senator REED. There is another aspect, I think, with the offshore, is that because of the large size of these towers and blades, et cetera, to transport them from the interior of the country is very expensive and impossible because of the constrictions of roads. So there is an opportunity again in Rhode Island to have the fabrication right there, not just for Rhode Island, but for the entire east coast.

I agree with you in the sense that initially there might be some significance of overseas products, but eventually I think that we can find capable American vendors.

So again, I think we should pursue this on all fronts. Thank you, Mr. Secretary.

Secretary CHU. Thank you.

Senator TESTER [presiding]. Thank you, Senator Reed.

Thank you for being here, Secretary Chu. I have a few questions.

HYDROPOWER

First of all, as you well know, Montana covers the gamut for energy production from renewable to conventional sources. One of the areas that we produce a lot, as in all of the West, is in hydropower. In fact, in 2007, I believe about 40 percent of our electricity was from water. We have a lot of opportunity with water, a lot of opportunity that has not been tapped yet in smaller projects that will produce smaller amounts of energy, but if you get enough of them, it will produce a lot of energy in hydro whether it is irrigation ditches or low-head hydro, whatever it may be.

The DOE's power budget in hydro has been cut by about 20 percent. And correct me if I am wrong. And I was wondering why that is the case, if there is a lack of opportunity in hydro from the Department's standpoint or whatever the reason might be.

Secretary CHU. Well, on this subject, I would certainly be willing to work with you on hydropower. I do believe hydropower is proven technology. It is clean. A DOE internal study said that we probably have 70 gigawatts additional hydropower by just replacing turbines with more efficient turbines, putting turbines on flood control dams, and under the river. So that means no large new reservoirs. That is a lot of power. That is a lot of clean power. So I will certainly work with you and your staff on—

Senator TESTER. Thank you. And the bottom line is you do not see that potential cut reducing our options when it comes to hydro?

Secretary CHU. As I said, we can work with you on developing a compromise.

Senator TESTER. Okay, sounds good.

ENERGY INDEPENDENCE

Some of the previous questioners talked about energy. The chairman talked about hydrogen fuel cells and other things, and you talked about technology being off a long ways in many areas.

I am curious to get your perspective as to whether you see this country ever becoming energy-independent. Is that within our wherewithal?

Secretary CHU. Well, completely energy-independent—it will take some decades, but certainly decreasing our dependency on foreign oil is something that I believe we can do, as everyone in this room well knows, oil especially, since we are now importing about 55 percent of the oil. So a strategy of better fuel economy, biofuels, electrification of vehicles, all those things will decrease our dependency.

Senator TESTER. What is the major roadblock in—let us just take transportation fuels, as you had mentioned, where we import 50 percent. I have actually heard higher numbers than that.

Secretary CHU. Fifty-five.

Senator TESTER. What is the major roadblock with achieving our independence with transportation fuels in a faster way, and does this budget address that roadblock or those several roadblocks?

Secretary CHU. Well, I think it does. I think of those things that I told you about—now, I think the oil and gas industry, in developing domestic sources of supply, and they are large, successful, well-funded companies. And so we believe that especially the oil industry has the wherewithal to do this.

We feel the Department of Energy's role—and this goes to Ranking Member Bennett's question as well—is to look at research in developing unconventional sources like natural gas sources before the industry wants to pick it up. Shale gas is a prime example of that. We started investing in shale gas research in 1978, stopped it in 1991. In 1990, Schlumberger picked up research on shale gas. And so that transition over to commercial companies is what we want to see. If it is a very beginning, very researchy thing, we say, okay, let us do that, but as soon as the oil and gas industry begins to pick it up, then we say, let us invest in other things.

Senator TESTER. Okay. I have got a bunch more questions, but I am going to be here for a while so I can come back.

Senator Murray.

Senator MURRAY. Thank you very much, Mr. Chairman. You look great in that seat.

YUCCA MOUNTAIN

I want to thank Secretary Chu for coming today, and I want to start out by asking you a few questions about some decisions that the administration has made on Yucca Mountain that I have been very dismayed by, including the decision that was made just yesterday to withdraw your Department's Nuclear Regulatory Commission license application for Yucca Mountain.

Now, I have read your written statement, and I have to say I think there is really something missing. Three times in there you say that Yucca Mountain is "not a workable option for nuclear waste disposal." But what seems to be missing is the why, and that

is really an important question and it is one the communities around the country, including in my home State in the tri-cities area, people who have really borne the burden of producing and cleaning up this nuclear waste, deserve to have answered.

So I wanted to ask you today who was consulted in making the decision that Yucca Mountain is no longer a viable option.

Secretary CHU. Well, one has to go back and look at the entire history of the choice of Yucca Mountain, the Nuclear Waste Act, all of those things. What one finds is that other things, other knowledge, other conditions, as they evolved, made it look increasingly not like an ideal choice.

Senator MURRAY. Was there scientific evidence that was used in determining this?

Secretary CHU. Well, it is an unfolding of issues that continued, and I would be happy to talk to you in detail about some of the issues. But the President has made it very clear that it is not an option.

Senator MURRAY. Was there any scientific evidence that was used?

Secretary CHU. Well, let me give you one example. The conditions in Yucca Mountain initially—and then they were changed—the Supreme Court ruling says that it is not 10,000 years. It could be up to a million years. Then all of a sudden, that puts a new dimension on Yucca Mountain. Climate is hard to predict over a million years.

Senator MURRAY. For any site.

Secretary CHU. Right, for any site.

Senator MURRAY. So why was Yucca Mountain different?

Secretary CHU. Because there are other geological sites where we can do radioactive dating and we know they are inherently stable. Let me give you one example. There is a salt dome site—these things have been around for tens of millions of years. The difference with salt dome sites is you stick radioactive waste in there. The salt diffuses around it. Even though the continents are drifting all around the globe, those things have been stable for tens of millions of years, up to hundreds of millions of years. That is a very different type of site than Yucca Mountain which has fissures and that rock can be saturated with water if the climate changes.

Senator MURRAY. Well, did your Department ask for input from communities like Hanford where waste destined for Yucca Mountain is currently temporarily being stored?

Secretary CHU. No, we did not, but we take our responsibility for the waste problem at Hanford, Washington, and all the States very, very seriously. We believe that we can handle that.

But again, let me just continue and go back to the Yucca Mountain. So all of a sudden, something changes and you say, well the fix is a multi-multi-billion-dollar titanium shield that is installed under the ground for Yucca Mountain. So then as these things go on, you are beginning to think are you beginning to pour good money after bad.

So the whole intent of the blue ribbon panel is to step back and look at it. Why were the salt domes ignored in the past? Well, initially if you put them in the ground, the salt oozes around it and closes, you cannot get it back. So this long-term geological reposi-

tory where you cannot get it back is actually in a certain sense an ideal place for long-term, forever waste disposal, geologically stable over tens of millions of years, cannot get it back. So that is the intent of the blue ribbon panel.

Let us step back——

Senator MURRAY. But I would assume that a blue ribbon panel would not just say we are going to take this one off the table. We are going to look at other ones that we have not spent a lot of money on, and they could have problems too.

You know, over the last 30 years, Congress, independent studies, previous administrations have all pointed to and voted for and funded Yucca Mountain as the Nation's best option for a nuclear repository. In concert with those decisions, billions of dollars and countless work hours have been spent at Hanford and nuclear waste sites across the country in an effort to treat and package nuclear waste that will be sent there. Without a repository, these sites and communities that support them have now really been left in limbo.

The question I want to ask you is what are you going to say to these communities today about why you have decided to go back on nearly 30 years of planning? And what can you do to assure them that the sites that they are now working to clean up will not become the final repository for this waste because we have taken some options off the table?

Secretary CHU. The Department of Energy has a legal obligation to move that material. We take that obligation very seriously. So I think that is the assurance. There is more assurance as you well know. There are ways of dealing with it if we fail to live up to our responsibility.

But going back to this issue of Yucca Mountain, we believe we have a path forward. We have a very distinguished bipartisan panel that is charged with review. They are going to be meeting at the end of this month, and the two chairs are very eager to get on with it and to give advice to me, the President, and Congress which could include advice on changes in the legislation to allow for a comprehensive, sensible approach to the back end of the fuel cycle.

Again, Yucca Mountain is not the ideal site, given what we know today and given what we believe can be developed in the next 50 years.

Senator MURRAY. Well, this is really disturbing to me because now we have pushed this down 2 more years and we have taken one of the sites off. You have told them do not even look at this in comparison to all these other ones you are going to look at. This leaves everybody just in complete limbo after 30 years of working on this, and I would like to ask you to provide this subcommittee and my office with an impact analysis which includes the cost and schedule impacts to Hanford cleanup and the other nuclear sites in my State.

Secretary CHU. All right.

Senator MURRAY. I just think it is irresponsible for the Department of Energy to discontinue the Yucca program altogether, its funding, licensing, and design. I believe that this has to be a decision based on science and moral responsibility. We have to clean

up this waste. It has to go somewhere and we cannot just unilaterally take one site out of the equation when we are looking at where this is going to go or we are going to find ourselves 2 years down the road in this same place and all the waste sitting in Hanford that is temporary storage is going to have no further answer. So I am really disturbed about this and want to get that information from you.

Mr. Chairman, if I could just have one more question here.

LEGACY MANAGEMENT

On the whole issue of EM, last year I wrote a press report that EM was going to be cut by \$1 billion. Now, fortunately, that did not happen. But the funding still for this fiscal year is inadequate to meet all the needs at Hanford. Particularly I am worried about the \$50 million shortfall for groundwater cleanup. This is really frustrating. I know there were increases in other parts of the energy budget. You know, all the new stuff out there is wonderful. We all want to fund it. But the legacy projects within DOE are absolutely critical, and these budgets are not put together just by wishing or magic. DOE works with the regulators. They work with the communities. They agree on the milestones and parts of those are the funding requirements that Congress then has to follow up with and the administration has to pay for. And we have got to have a Government that backs up its promises and commitments with real money.

So I just wanted to ask you, while you were here, how a base budget that is inadequate to meet the work plans illustrates a commitment to these communities that we are going to clean up these sites.

Secretary CHU. Well, Ines Triay, my Assistant Secretary for Environmental Management, tells me that the budget request of roughly \$6 billion is adequate to meet our legal obligations. As you know, I have consistently fought to sustain these programs.

Senator MURRAY. Well, we still have shortages in some areas. Truly, you were out. You visited Hanford. It is an enormous site. It is a legacy project from another war, and we cannot ignore it and we have to meet the milestones and we need to fund it. I appreciate that the billion-dollar cut did not go through, but we still have some shortfalls.

And I am worried about next year too because everybody keeps thinking, well, nobody will pay attention to these EM projects out there. If we do not pay attention to those, if we do not meet the milestones and the legal obligations, the disaster that will hit this country is much, much larger than the cost that we have today. So we have got to keep those commitments.

Secretary CHU. Mr. Chairman, can I have 30 seconds.

We are maintaining the budgets, but it is much more complex than that. We are working very hard to make sure that the contractors can do better than they have done in the past. Senator Bennett had noted that many of the things in the Department of Energy have been over budget, over time. It is actually true of EM. It is not true of the Office of Science. And so when I walked in the door, since the Office of Science actually does big projects on budget, on time, the best practices in that office now are being actively

transferred over to Environmental Management and a little bit to NNSA. So we are working very hard to make sure that every precious dollar that we are spending in EM goes as far as it can. That is the other way we hope to accelerate these processes.

Senator TESTER. Senator Landrieu.

Senator LANDRIEU. Thank you very much.

And Mr. Secretary, thank you for your leadership at this quite exciting and uplifting time in this particular area for our country and the world.

I have three questions. I am going to try my best to get them all in.

NATURAL GAS

As you are aware, Louisiana has been at the center of a domestic energy revolution as it pertains to the shale gas revolution. This technology, new technology, has unlocked shale gas resource space. The United States suddenly finds itself with four times the volume of gas than we thought we had just a few years ago.

I want to ask you what you think about the implications of these natural gas finds both onshore, which are pretty extraordinary, as well as our continued exploration and discovery offshore.

And as you may be aware, the Congressional Research Service recently released a report that said simply by utilizing natural gas-fired plants that are constructed today, as opposed to other plants, to fill the energy needs today, we could reduce our greenhouse gas emissions by 19 percent. I found that quite startling and encouraging.

So could you comment on how this new discovery, new technology is informing your thinking as you move forward?

Secretary CHU. Well, the ability to recover gas from shale rock is something that opens up the possibilities. I do believe that natural gas is a necessary transition fuel to a low-carbon economy. Right now, if you burn natural gas compared to uncaptured and sequestered coal, it is about a factor of 2 less carbon dioxide per unit of electricity generated. So that is good.

But let me also add that in order to reach the climate goals we need in the world, by mid-century we are going to be having to capture the carbon from both natural gas plants and coal plants.

The discoveries and the demonstration of recoverability is something which will hopefully keep the natural gas prices down, and for that reason—the biggest uncertainty, as you well know, to a power company is the volatility of the natural gas prices.

So now, I heard slightly different numbers, between a 3 percent increase to doubling of the natural gas reserves because of the shale gas. But no matter, let us take doubling as a compromise. That is a lot. It means that we probably have natural gas supplies that could last a century. So these are good things. We still want to use that more cleanly.

I should also add that natural gas is also a transition fuel for a different reason that is probably not appreciated. If you have renewable energy, sun and wind, within a matter of minutes to hours, that generation can literally disappear. You can Google Bonneville Power Administration, and they give the last 7 days of wind

production, and it is a running clock updated every minute. And it wobbles up and down.

Now, when the wind stops blowing or tapers off, you have minutes to perhaps an hour to respond. And in so doing, you asked what sources of energy can respond; hydro and natural gas. One does not ramp up nuclear powerplants rapidly, nor does one want to ramp up coal plants. So for that reason, the rapid response of natural gas is something that is also part of the transition.

Finally, let me add one of the technologies we are looking at, which is compressed air storage. You take wind or other renewable energy or even nuclear energy at nighttime, you use that. You compress air. You bring the air back and help it spin a turbine, but you want to use natural gas to boost it. Now, the wonderful thing is you can probably—70 percent of the electricity needed to compress the air, pump it into a cave and have it come out can be used to generate electricity. You only lose 30 percent and some people say, with newer designs, perhaps even less. So there again, natural gas has a role in actually helping generate renewable energy use. So these are all reasons why—

Senator LANDRIEU. Well, I really appreciate that because, as you know, Senator Saxby Chambliss and I have formed the Natural Gas Caucus and it is not because we are anti-oil or anti-coal, which we also represent the interests of oil and coal and want to make sure that they have a place in the future, as they have had significantly in the past and the present.

But we think the properties and the potential for natural gas are very significant, and I am very grateful for you basically outlining two or three, not the least of which could potentially be using natural gas, compressed natural gas in vehicles, which brings me to my next question. And I appreciate that.

ADVANCED TECHNOLOGY VEHICLES MANUFACTURING LOAN PROGRAM

Your Department is leading the effort to disburse \$25 billion in investments, which score to our budget at about \$7 billion, but it is significant for new vehicles, the program you recently announced. As you know, many States have an interest, and Louisiana has been working in conjunction with our Department of Economic Development on an exciting potential new model for a vehicle that is in the queue for support.

Can you just give an update about that program? I understand you have \$25 billion to allocate. You might have done this in your opening, and I am sorry if I am going over ground already covered. But kind of an update of where you are and what is your general view of the kind of applications you are seeing. Are you excited about what you are seeing? Are you encouraged? And then any particular comments on the Louisiana proposal I would appreciate hearing.

Secretary CHU. Well, just as a point of information, are you asking a question about our overall advanced automobile—

Senator LANDRIEU. Yes, automobile program, the ATVM program.

Secretary CHU. Yes. I am seeing some very good signs.

We, in some sectors, had fallen behind other countries in the most advanced fuel-efficient vehicles, but I think the American car

manufacturers are determined to catch up and surpass them. There are developments across the whole gamut, from improvements in conventional internal combustion and unconventional internal combustion in the sense of direct fuel injection. Much more economical engines.

Electrification, the weak point is the batteries. Both the major car manufacturers and little start-ups, I think, have made progress. I would be personally hopeful that within a few years the energy density in batteries could double, but we actually need, I believe, perhaps a quadrupling of the energy density before it is simply adopted mass market. So you have the range and the battery does not take up the space that the current batteries do take up.

We are in the process of developing—again, since this is research and development, one cannot give a timeline—batteries that also last much longer. The Prius battery, the current metal hydride batteries in a Prius are kept within 10 percent of half charged. They are 55 percent to 45 percent. If you take that battery and drain it deeply and then recharge it, the lifetime goes down very quickly and you probably had that experience in your own laptop computer. If you drain the battery hundreds of times, you will find that that laptop battery no longer has the capacity it once did, let us say, a year or 2 ago. So the lifetime of the battery is an issue. You want the battery to last the lifetime of the car.

Senator LANDRIEU. Thank you. I know my time is up, but Mr. Secretary, the battery technology is so interesting for all of us, but there are opportunities for plug-in, opportunities for new infrastructure for plug-in, with the current battery technology that we have now. Is that not correct?

Secretary CHU. No. I think the Chevy Volt battery takes up a huge part of the car, and so GM started this where they went in with the intent of developing the technology more aggressively. So as the Chevy Volt and the Nissan LEAF and all these other—well, the Nissan LEAF is not a plug-in hybrid, but the Chevy Volt is. So of the plug-in hybrids, we still have room for improvement. Again, I think the good news is that it is happening. The development of batteries has accelerated.

Senator LANDRIEU. Well, thank you very much and thank you for your focus on our program which is a little different than the electric vehicles but we think extremely exciting and the possibility. So thank you for your attention and your staff's attention.

Senator TESTER. Senator Alexander.

Senator ALEXANDER. Thanks, Mr. Chairman.

Dr. Chu, I want to thank you for your exceptional service in your job and complement the President and you on his recent comments on nuclear power. I completely agree with Senator Murray about Yucca Mountain, but the President's comments about a new generation of nuclear power, the quality of his nominees and appointees for the Nuclear Regulatory Commission and for the Commission on Recycling Used Fuel, the approval of the loan guarantees. All are an important step forward in that, and I know you played a major role in it and I congratulate you for it.

LOAN GUARANTEES

Do you think it would be a good idea over the next few years for Congress and the administration to move toward a technology-neutral, low-carbon set of short-term subsidies, policies, loan guarantees and standards rather than picking and choosing individual types of clean energy?

Secretary CHU. Yes and no. If you have a very new technology that you think over a period of 10 or 20 years could become competitive, then it does make sense to nurture that technology. Under no circumstances, I believe should you nurture a technology where you say over this time period—let us say 10 or 15 years—where it would need subsidy forever. But virtually every technology, as it begins and emerges—and it is also true of nuclear—wind, solar—these things needed a little nurturing, but then after a while you say, okay, eventually you have to stand on your own and you have to know that you are going to have to stand—

Senator ALEXANDER. So after a while we get to it.

We did a little computation of—we asked the Energy Information Administration—wind power gets 25 times as much Government subsidy per megawatt hour as all other forms of electricity combined. You know, we put in a production tax credit in 1992 and it just keeps going, and we had four Democratic Senators yesterday point out how \$2 billion in stimulus funding was creating jobs in China to build wind turbines, which they did not like.

So that is why Senator Webb and I on our loan guarantee—I am very delighted with your approval of loan guarantees for nuclear. But in our legislation, we make it for all low-carbon forms of energy. So there is some subsidy, some policy, and some standard. The renewable fuel standard, for example, excludes nuclear power and some other forms of clean energy and in a way distorts the market, making it more difficult for investor-owned utilities to build nuclear plants based upon market-based decisions.

NUCLEAR WASTE

But if I may keep going so I do not take too much time here. I mentioned the quality of your appointees to the Commission on Used Nuclear Fuel. While you decide what to do, you can still continue aggressive research in the recycling of used nuclear fuel. Can you not? And do you plan to do that?

Secretary CHU. Yes. We have a budget of over \$400 million, close to \$500 million that we have proposed to Congress. Included in that budget are new reactor designs that could potentially burn down, harvest much more of the energy content, small modular reactors, beginning with conventional light water but going forward where these small modular reactors would be totally prefabricated and built in a factory and shipped successfully in the United States where the location of a powerplant could not handle a 1.5 gigawatt power line, many, many things like that.

Included in that is research in reprocessing fuel, as well as research in advanced reactors with higher energy neutrons that can burn down the long-lived waste. The whole idea there is to greatly reduce the amount of nuclear waste to greatly harvest much more

of the energy of the uranium, all those things. So we plan a very comprehensive program going forward in all those areas.

Senator ALEXANDER. Senator Bond has an interview he wants to get to. So I will not ask you to answer any of these, but I will state these questions quickly.

I would like to ask you to respond to a question about what you think the risk of loss is for the loan guarantees for nuclear powerplants. I think it is small. Others have said it is large.

Second, I hope that you will keep high on your agenda the uranium processing facility at Oak Ridge which this subcommittee approved design for, and the sooner we get it done, the quicker we can reduce the annual overhead costs at Oak Ridge.

Third and finally, I hope you will keep in mind the efficiency of third-party financing for facilities at places like the Oak Ridge Laboratory in Y-12. We can build buildings cheaper and faster if we allow other people to build them and rent from them. Sometimes that gets hung up in the Department of Energy or the Office of Management and Budget. We have had good success with that at Oak Ridge, and I hope when that comes before you, that you will pay close attention to that.

Thank you very much.

Senator TESTER. Senator Bond.

Senator BOND. Thank you very much, Mr. Chairman, and the ranking member, my particular appreciation to my colleague from Tennessee. This is one of those days when if we were cloned, we would still be about two places short. I thank you very much for letting me discuss these issues.

COST OF GREEN JOBS

I agree with Senator Alexander that we need to begin taking a look at the economics of wind power. I had a private sector contractor in my office yesterday saying wind power is very expensive. It is not worth the cost, but we love it because every time they build a wind power facility, we get to build a natural gas facility beside it for peaking power. So we make money off of it, but it is not a good investment for the taxpayer dollar. As I look at the \$20 a megawatt subsidy plus some figures that we have developed, I think that we need to be very careful about where it is efficient and effective to use wind and solar power.

Our Missouri National Guard team and others in Afghanistan are using solar power to power re-pump facilities to fill reservoirs. It makes sense. Whenever the sun shines, they can pump water, but trying to put it on the grid does not work.

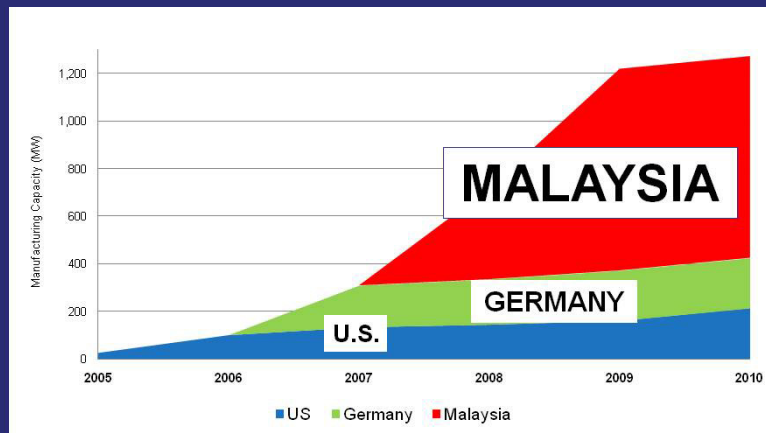
But when you come to the stimulus dollars, I think we are talking about green jobs, but when families are struggling to make ends meet and workers to find and keep jobs, I think it is important that the American people know that the so-called stimulus funds to stimulate jobs in America, being put on the credit cards of our children and grandchildren, are actually stimulating jobs here. And too often they are not doing it.

I serve as the ranking member on the Green Jobs and New Economy Subcommittee of the Senate Environment and Public Works Committee. We examined this issue last month and I examined the issue last year and found out that most of the so-called good, high

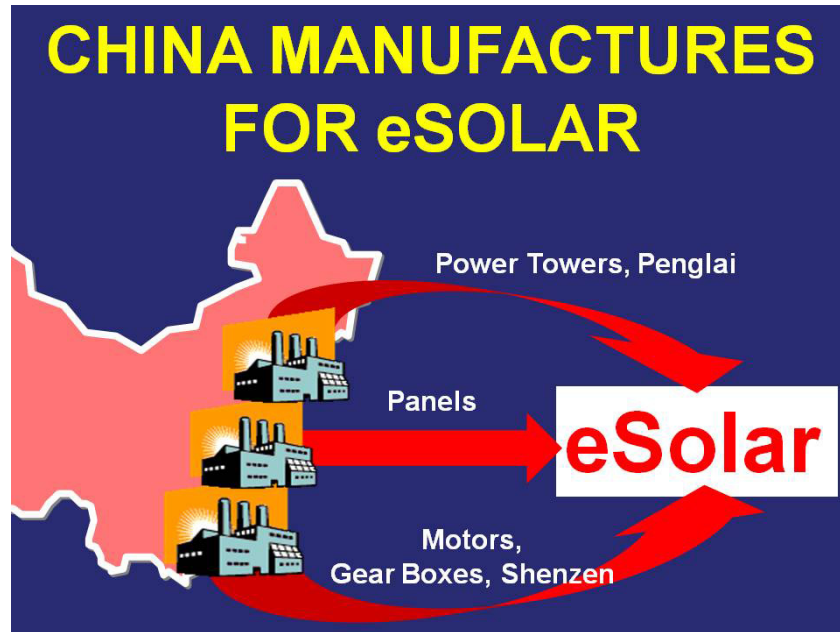
quality, new manufacturing jobs are going to Asia where labor costs are a fraction of the U.S. salaries, energy costs are low, environmental regulations are nonexistent. So there are some U.S. construction jobs to put up wind or solar plants and a handful of remaining operations jobs. The good paying manufacturing jobs are going to Asia, not the United States.

FirstSolar, a company that manufactures solar panels and equipment, testified before our EPW Committee advocating for more Government green job spending. No wonder. What they did not admit was they are sending all of their new solar manufacturing jobs to Malaysia. And as the chart here shows, that is where they are going to go. That is where we are going to stimulate it.

FIRST SOLAR – MOST NEW MANUF. JOBS OVERSEAS



eSolar testified that they are developing solar powerplants in the California desert. It is another company. What they did not admit is that most of their manufacturing is in China. Gear boxes come from Shenzhen, towers from Penglai. Even the panels come from China. This is eSolar.



DOE just awarded a \$1.4 billion loan guarantee to BrightSource Energy to construct a solar plant in the California desert. The press release talks about U.S. construction jobs, but says nothing about who will manufacture the project's solar panels and equipment. I am concerned that we will discover that China is the one who is getting the U.S. stimulus dollars for this project.

Now, I think we ought to be dealing more with China. We ought to be competing in the world market. We need more trade. But when we are saying that we are stimulating U.S. jobs with these stimulus dollars, it isn't so. We need to be trading on an economically beneficial basis with partners like China, but stimulus dollars going to China and Malaysia and elsewhere around the world are not meeting the test of stimulating the U.S. economy.

That is why I wrote to you on November 10 expressing my concerns over the news report that DOE was using the funds for 3,000 turbine manufacturing jobs in China to build a Texas wind farm. In case you do not have it, here is a copy of the November 10 letter that I still have not had a response to.

[The information follows:]

LETTER FROM SENATOR CHRISTOPHER S. BOND

NOVEMBER 10, 2009.

The Honorable Dr. STEVEN CHU,
Secretary of Energy,
 Washington, DC 20585.

DEAR SECRETARY CHU: There is bipartisan concern that the Obama administration is using U.S. taxpayer dollars to fund green jobs in China and other foreign countries. As U.S. unemployment tops 10 percent during this time of economic distress for America's families and workers, we must ensure that our Government is not using American taxpayer dollars to create more green jobs in China than in the United States.

My colleague Senator Charles Schumer recently wrote to you expressing concern over the Department of Energy's (DOE) use of stimulus dollars on wind projects that will benefit primarily Chinese workers because the wind turbines are constructed in China. He noted recent news reports that a Texas wind project under consideration by DOE would create up to 3,000 green jobs in China. I applaud Senator Schumer's leadership in this area and want to assure you that his concerns are shared by me, both as a Senator from a Midwestern manufacturing State and as ranking member of the Senate Subcommittee on Green Jobs and the New Economy.

Senator Schumer cited a report by the Investigative Reporting Workshop at American University that found that the Obama administration has awarded 84 percent of its \$1 billion in clean energy grants to foreign wind power companies. That is an important issue, but of deeper concern to me is what number of jobs in foreign countries are funded by DOE clean energy grants. A good-paying job located in the United States is still a good job, even if it is supplied by one of our foreign friends. However, subsidizing thousands of foreign green jobs is a bad use of U.S. taxpayer dollars.

Therefore, please undertake a review of all renewable energy projects pending or approved by this administration to determine both the number of U.S. workers and workers in foreign countries they will utilize and supply that information to the Senate Green Jobs and the New Economy Subcommittee. To the extent that your review for Senator Schumer provides information on the use of stimulus funds in this regard, there is no need to duplicate those efforts. However, as a member of the Senate Energy and Water Appropriations Subcommittee, I am concerned about the use of annual appropriated funds in this regard and ask that you ensure that your review reflects all funds appropriated by Congress. Thank you in advance for your attention to this matter.

Sincerely,

CHRISTOPHER S. BOND.

Senator BOND. A recent outside investigation found that 79 percent of nearly \$2 billion in DOE wind energy stimulus grants have gone to foreign-owned firms. Of the 28 wind farms so far receiving DOE stimulus grants, over 1,200 of the 1,800 wind turbines installed were built by foreign manufacturers.

Personally I am much less concerned about what companies are getting the funding, but if they are calling it "stimulus for hiring U.S. workers," I want to make sure they are hiring stimulus U.S. workers. If they are foreign companies investing in the United States, great if they are hiring U.S. workers, but do not call them stimulus jobs if the jobs are overseas.

That is why I asked you to undertake a review of the dollar spending under the stimulus and to tell me the number of foreign workers who would be employed. I am still waiting for a reply. My staff checked with your Department again in December and January and March, and I know others have expressed frustration. But I have a copy of this letter that I will be happy to supply to your staff, and I would like to be able to tell my constituents that when you put money, borrowed from our children and grandchildren, into stimulus, they are stimulating jobs in the United States.

Now, I am not here just to complain. I want to thank you, as Senator Alexander did, for your commitment to loan guarantees to bring the best clean energy, nuclear energy on line. You were referencing reprocessing. We have got a tremendous amount of first-time spent nuclear fuel which can continue to be used, reducing its weight. If it is in Tennessee, fine, but wherever you can do it. Clinch River breeder reactor I believe should have gone forward.

And for clean coal, we thank you for those efforts. Whatever you think about coal, I think that we have got over a couple of hundred years of BTU's. If we can get that started, that will be a long way

toward meeting the needs that we have for energy. I appreciate that.

And I would like to have an opportunity to hear your comments. Rather than asking you a particular question, I would like to have your assurance that you will supply us information on the foreign jobs and what we are doing to see that if you are calling them stimulus jobs, they produce jobs in the United States. So I might ask you that and ask you for your comments on the many issues I raised.

Secretary CHU. So very quickly, thank you for your support on the nuclear energy sector.

The wind turbines that are being—first, this famous example of the China wind farm in Texas—I keep on asking my people, have we gotten an application for a grant on this, and they keep on saying no. So all I can say is although that has gotten a lot of press coverage, we have not gotten an application for a wind farm made with China parts in Texas.

With respect to the stimulus jobs, yes, the stimulus and Recovery Act is all about giving jobs in America. I absolutely agree with that.

The wind turbines that are constructed now in America—part of the parts are from abroad, part of the parts in the United States. The value of the parts in the United States is 50–60 percent and climbing. And we are working toward getting that fraction up higher and higher.

I mentioned before that I toured a Vestas plant where they are investing—I think it is a total now of maybe \$600 million in a factory in the United States for manufacturing wind turbines in all of North America. They are up to 70 or 80 percent American-made parts. And of course, when you install the turbine, it is American workers. Seventy to 80 percent is a good number because if you look at an American-made automobile, a Chrysler, for example, that is about the ratio of parts made in the United States.

Now, you might ask why Vestas would want to have local suppliers. It is for the same reason why they want to have a manufacturing facility in a country that appears committed to wind. It is a lower cost to them. They are less susceptible to currency fluctuations between countries. They want to develop local supplier chains again because of cost/benefit.

And because we were not a good wind market until recently, until the last 5 years, the turbines were developed and manufactured abroad. So this is part of the strategy of bringing them back to the United States, getting major U.S. manufacturer headquarters companies like GE—has come back into the game.

And we will be glad to give you the details of what the fraction of money spent on, let us say, a wind farm is in the United States and where it is going. So we would be happy—

Senator BOND. And we will share with you, as I said, the testimony from EPW on the plans for the people who have gotten the money to invest it solely overseas. And I hope that you will take a look at that. When they are saying, hey, we are going to build plants in Malaysia with stimulus dollars, that is a negative as far as I am concerned.

Secretary CHU. We will certainly look into that.

Senator BOND. Good. Thank you very much, Mr. Secretary.
 Senator TESTER. Senator Bennett.
 Senator BENNETT. Thank you, Mr. Chairman.

PROJECT APPLICATION PROCESS

Mr. Secretary, we talked about the time necessary for application review, nuclear power, and so on. I just want to make the comment that it is my understanding that the review process differs by type of application. In other words, applicants with nuclear power generation projects receive a ranking from DOE before submitting a full application, but applicants with coal-based and other types of projects do not. Applicants with some kinds of technologies are allowed to brief DOE and explain their projects after submitting their applications; others are not, potentially denying them opportunity to clear up misunderstandings. I would appreciate it if you would look into this and see why applicants are treated differently in this regard.

CONTRACTOR PENSIONS

Now, the last thing I would like to get back to and the point I would like to make—I talked about the major crisis regarding contractor pension funds. I understand you have changed the way you are budgeting for pensions and in an effort to see that it is less of a crisis, and I would appreciate any explanation you might have as to what you are doing with respect to that and what we can expect in fiscal year 2011.

I would recommend that you ask the GAO to undertake a comprehensive review of the pension problem and solutions going forward. I intend to do that, and so whether you do it or not, the request will go in. So I am giving you a heads-up that I will be sending a letter to GAO fairly soon and would appreciate it if you could join me in that. If within the Department they think it is not a good thing to do, I will proceed anyway. But I wanted to let you know that that is the sort of thing I had in mind.

So if you could talk about that whole issue, I think it would be helpful.

Secretary CHU. I would be delighted to.

As you correctly point out, there are huge liabilities in the DOE pension program because unlike pensions of other contractors, the Federal Government and the Department of Energy is responsible should those programs be mismanaged—

Senator BENNETT. You have the highest number of outside contractors of any Department in the Government except DOD.

Secretary CHU. Correct.

The CFO's office has done what I consider a spectacular job over the last 6 months in trying to get their hands around the problem. We are engaging now the contractors very actively to deal with the pension overhangs, especially when the stock market went down last year.

We are taking a number of steps in order to make sure that the contractor's—there is a tight rope line here. The way the contracts are written—and we do not want to manage the funds of the contractors. However, what we can do is use the mechanisms we have, for example, award fees, whether there can be continuous contrac-

tors if they mismanage their funds because this is a liability. In 2009, we had budget shortfalls. Because of that, it required some top line transfers. So we are taking a much more active role in trying to spot early on what is the vulnerability of the pensions.

We also want to share—there are certain contractors who have managed their pension funds quite well. In fact, without appearing provincial—I know I am going to appear provincial, but I will do it anyway. The University of California—they have managed their pension funds very well. So, for example, in the Lawrence Berkeley National Laboratory, the employees—it was so well managed that for 16 years they did not have to contribute anything to the pension fund because of the quality of the investments. This is a good thing.

Senator BENNETT. Yes.

Secretary CHU. But I have to say other contractors did less well. So we are beginning to get our arms around spotting early and ask if the asset allocation classes make sense. For example, if 80 percent of your workforce is either retired or about to retire in 5 years, what is the asset allocation? Does it make sense to have 50 percent of them in equities? You want to start to transition to guaranteed income as an example because of the age of your base.

So these are things that we are saying we want to develop mechanisms that essentially share best practices among the labs. You know, some contractors do well; others do not do it well. And to convince the laboratories and the contractors for those laboratories how important it is that everybody manage their pensions well because if one or two make a mistake, we are now talking about hundreds of millions of dollars of top line transfers to bail it out.

So this has gotten our full attention and we are investigating it. We welcome the GAO investigation as well because we see this as an opportunity. They could have seen things we missed, but we are doing it ourselves and we are doing it very aggressively.

Senator BENNETT. Thank you. I appreciate the aggressiveness with which you have addressed that.

Thank you, Mr. Chairman.

Senator TESTER. Thank you, Senator Bennett.

FOREIGN PRODUCTION OF ENERGY GENERATION EQUIPMENT

I have a few more questions. I want to start out by saying—it is no surprise to you—I was one of those four Democratic Senators that had that press conference yesterday on generation of equipment that was built outside this country.

I will also say that I know you have come into this situation in a tough position. First of all, I think you came into the Department of Energy with energy policy that was antiquated and lacked diversity. I think for the last 30 years we have watched our manufacturing base leave this country because we have had poor policies in this country and we have had poor trade policies in this country. So I think it is patently unfair to come in and say that this is your fault because we are buying generators across the pond in one of those ponds.

And I think you explained it very, very well when you said a lot of these parts are made here. We like that. And we want generation equipment made here. I read not too long ago that if one of

the hydro plants went out or one of the coal-fired electrical generators went out, that we do not make those in this country anymore. That is somewhat distressing to me, and I know it is to you too.

So as we move forward and we move our energy economy into the 21st century, I just want to express my appreciation for you standing up and doing the right thing, and I appreciate that. The press conference yesterday from my perspective was not a negative on you. It was a negative on where we have come in the last 30 years, and I do not think it has been positive.

ENERGY TRANSMISSION MODERNIZATION

Getting back to your budget, I would just like to say DOE has got a \$60 million study to look at transmission. You and I both know the transmission again is antiquated. We need to do something about that. The results for that study are going to come up in about 2011 or 2013.

In the interim, we both know that there are problems out there with transmission. How are we addressing that issue in the interim for this study?

Secretary CHU. Well, there are many issues. Over a several-decade period, modernization of our transmission system that enhances its electrical reliability and also allows a diverse set of energies to be moving around the country—especially as the variable sources of energy come higher on line, will require a system that can automatically respond to, all of a sudden, several billion watts of energy going off line because the wind stopped blowing in a certain region, Montana, Wyoming, you name it. So the amount of money needed for that is truly in the hundreds of billions of dollars.

Central to all these things are questions of line siting, right-of-way issues, of costing of the electrical lines. Typically the cost of the electrical lines is borne by the supplier, but as we enter in this new era—it used to be that the supplier—you build a coal plant, a gas plant, something like that. It is local. This is not an issue. But now all of a sudden, we are going to enter in an era where you are going to be moving energy over hundreds of thousands of miles.

Senator TESTER. And so I think the question is—I have got transmission projects in the State. I know New Mexico, Arizona, and Nevada. How do you prioritize them without this study being in?

Secretary CHU. Well, again, it is a divided responsibility. There is the Department of Energy. There is FERC. There are also Federal lands. It turns out that many of the companies who want to string transmission lines tend to try to stay away from Federal lands because there is local resistance there, as well as local private land resistance.

So what we have been trying to do—you know, I will be the first to admit I am not happy with the amount of progress, but Ag, Interior, the chairman of FERC, I, others, CEQ have been meeting over the last year to try to see how can we get this done in a better way. I am not completely happy with the progress, but this is an important point. It is not lost that this is a problem that needs to be solved.

BIOMASS AND BIOREFINERIES RESEARCH AND DEVELOPMENT

Senator TESTER. Montana is no different than most of the Mountain West. A lot of our forests are red and dead. A lot of that material cannot be made into plywood or 2 by 4's or anything. It is non-merchantable but it can be used for biomass and so it can create power.

The DOE is flat-lining the budget for biomass and bio-refineries research and development as one of the two programs in the whole energy efficiency budget to not receive an increase. Is this a signal that biomass innovation is not a priority?

Secretary CHU. No, it is a priority. It is a signal that we have tough choices. Again, I would be willing to work with you on this.

But here, the biomass—actually, quite frankly, because of a lot of dead standing pine trees that are there in the West of the United States, there is an opportunity not only for those sources of biomass but also the biowaste, the wheat straw, the rice straw, the cornstalks, all those things we think have an opportunity to be harvested for energy, either electricity generation or fuels. So we do remain committed to doing that. Again, it was a hard decision that we have to sometimes make.

CARBON CAPTURE

Senator TESTER. I want to talk a little bit about research and development, and then I will let you go. There are two particular areas that I think research—and there are many more than this that are particularly applicable. Being from a coal State like Montana, how we capture carbon, whether we are making limestone out of it or putting it underground for storage, long-term storage is one way. I was wondering how you would assess our progress on that and if there are adequate dollars in the budget to take care of that. And are we holding the people who are doing the research accountable for results?

Secretary CHU. There are dollars allocated for that purpose, and there are also private companies looking into that, taking carbon and turning it into whether it is cement or various kinds of things. It really is an R&D level thing. It is not ready for deployment. We are in piloting stages. We are looking at all of these things. What I would call the general rubric of beneficial and economic uses of carbon is something that we and other countries are examining.

Senator TESTER. Okay. I mean, coal is going to be around for a while. Is progress being made at an adequate rate that you are happy with?

Secretary CHU. Well, we have invested—

Senator TESTER. A lot of money.

Secretary CHU [continuing]. A lot of money. We have a number of pilot plans come forward. I am heartened that a number of utility companies and power generating companies are partnering with the Department of Energy in a major way to start to test the capture at scale, at the hundreds of megawatt level, which is really what matters. That is the really necessary step before you say, okay, we begin to deploy. So we have a number of projects that we are investing in and they are being done now.

We are also investing all the way up the pipeline toward even better ways of capturing the carbon, either before you burn or after you burn. So we think with some of these new ways we have a potential for—you know, it is all about driving down the costs, keeping the energy bills as low as possible, and getting it as clean as possible. So we think these are good.

Now, for those of you who do not know me that well but for those of you who know me when I do research and everything else and for those in the Department of Energy, I always think we can go faster and always want to go faster. But we are moving.

Senator TESTER. Well, my point is that as we deal with energy and climate change and all the things around that and a diversified energy portfolio, this is an important issue. I feel the immediacy. I think you feel the immediacy. I just want to make sure we are getting results. That is all.

NUCLEAR POWER

Next question, same area, different energy source and that is nuclear power. You have answered many questions on it as far as nuclear reactor design. It is the same issue. As we talk about greenhouse gas from coal, we talk about nuclear waste from nuclear powerplants. Are there adequate dollars for research there so we can get our arms around that? I do not think we are talking about that near enough as we go forth with nuclear power, and that is how we are going to deal with the waste and if there is a solution to that waste.

Secretary CHU. I think there are solutions to the waste and still ever better solutions I think can be found. So this is why we are putting together a long-term road map over 10, 20, 30, 50 years in order to deal with this. Nothing in nuclear moves quickly. You do not get something up and proved and running in a couple years. I mean, just the approval process—you have to proceed carefully.

But we did ask for an increase. I think, as a scientist and a techie, there is a lot more we can do and there is a lot more where the technology can be improved.

Senator TESTER. I want to thank you for your testimony and your direct answers to the questions.

ADDITIONAL COMMITTEE QUESTIONS

The record will remain open for 1 week for members to submit questions and comments.

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

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

Question. How much funding is being dedicated to R&D on natural gas end use technologies in EERE? In particular, what is the DOE doing to help develop residential and commercial technologies that will be acceptable in a carbon constrained future

Answer. The Vehicle Technologies Program has an open solicitation for medium- and heavy-duty engine development and vehicle platform integration that includes \$5 million of fiscal year 2010 funds, leveraged with similar funds from partners California South Coast Air Quality Management District and the California Energy Commission (CEC). Work funded under the current solicitation will be complemen-

tary to work already underway funded by CEC. A 50 percent cost-share will be required of awardees.

Furthermore, there remains a small amount of funding under the Fuel Processor and Distributed Energy subprograms in Hydrogen and Fuel Cell Technologies. The planned funding in fiscal year 2010 is \$370,000. The fuel processor could be utilized in combined heat and power (CHP) systems that are more efficient than legacy combustion technologies.

Question. I note a better budget request more last year for Hydrogen and Fuel Cell R&D; however, the request is significantly below the 2010 appropriation.

Why is DOE not funding the Market Transformation program that helps bring market ready fuel cell technologies to customers?

Why does the DOE continue to reduce funding for vehicular fuels cells and the supporting infrastructure when we all acknowledge a need to investigate multiple alternatives to traditional transportation technology?

Answer. DOE requests \$9 million for Market Transformation activities in fiscal year 2011. This funding will focus on key Safety, Codes and Standards activities, which are essential for market transformation. In addition, the Program will assess the impact of \$42 million awarded from the Recovery Act for stimulating market pull, increasing manufacturing volume and reducing the cost for fuel cell systems.

The Department's reduction of the Hydrogen and Fuel Cell Technologies (HFCT) budget by \$37 million allows a balanced portfolio of transportation solutions and continued focus on battery and advanced vehicle approaches for more near term impact. DOE will also maintain a strong effort in key areas of hydrogen and fuel cell research and development. DOE requests \$50 million for the Solid State Energy Conversion Alliance (SECA) Program and expects to maintain funding levels at approximately \$38 million through the Office of Basic Energy Sciences for long-term and crosscutting R&D in hydrogen and fuel cells. The SECA Program was initiated to bring together government, industry, and the scientific community to promote the development of environmentally friendly solid oxide fuel cells (SOFC) for a variety of energy needs. SECA is an alliance of industry groups who individually plan to commercialize SOFC systems for pre-defined markets; research and development institutions involved in solid-state development activities; and Government organizations that provide funding and management for the program.

Question. I note the funding request for Residential Buildings Integration is less in 2011 than was appropriated in 2010; however, the DOE has suggested actually adding to the program by including retrofit research and development. How do you plan to accomplish the goal of Zero energy homes with this reduction in funding?

Answer. Prior to fiscal year 2010, the DOE Building Technologies Program focused research efforts on new buildings with the idea that energy efficiency technologies and research aimed at new buildings would also be applicable in existing buildings. While there is some overlap between the two markets, particularly in space conditioning, hot water, appliances, and lighting, there are also a number of R&D needs that are specific to energy retrofits for residential buildings that the program will seek to address starting in fiscal year 2010.

Energy retrofits are considered to be among the most cost effective ways for the Nation to reduce its energy use and carbon emissions. While zero energy homes remain a goal for the Department, another goal is to support the retrofit industry—at a national scope and scale of up to two million retrofits per year. This service goal will drive the research into immediate near term focus and deliverables, which can immediately go into service by contractors and other service professionals. The zero energy home goal remains a priority over the long term for this program.

Question. Are there limitations inherent in today's lithium ion batteries which require a step change in the weight and power/energy density of these batteries to secure longer life as well as provide on demand power/acceleration.

Answer. There are no limitations inherent in today's lithium-ion batteries that preclude them from having the ability to provide the power/acceleration for hybrid vehicle (HEV) and plug-in hybrid vehicle (PHEV) applications while meeting the vehicle size and weight targets for the battery. Battery life is typically driven by the capacity fade that is influenced by several factors including: (1) chemical interactions inside the battery cell that are specific to the electrochemistry; (2) battery operation; and (3) cumulative temperature profile over the life of the battery. Vehicle manufacturers currently install excess battery capacity in order to ensure meeting their battery life target. As greater confidence in battery life under real-world driving conditions develops, the amount of excess capacity installed is expected to decrease, which will subsequently reduce the overall battery cost.

For battery-powered electric vehicle applications, improvements in battery size and weight are sought in order to provide for a longer driving range. However, lithium-ion batteries are still far from any theoretical limitations on energy density.

Next-generation lithium-ion batteries will employ metal alloy anodes (instead of graphite), and high-capacity cathodes, resulting in significant increases in energy density. Research and development efforts on these technologies are well underway and are progressing well.

Question. Would you agree that one of the issues that has to be addressed in developing next generation lithium ion battery technology is to reduce or eliminate the irreversible capacity of that same cell?

Answer. DOE agrees that, for some systems, irreversible capacity loss (ICL) is an important issue that must be overcome to enable next-generation Li-ion cells. The ICL associated with alloy anodes is one of several barriers to commercializing that technology. Other issues include large volume changes upon cycling (which leads to particle fracture), disconnection from the rest of the electrode material (resulting in severe energy fade), and unstable alloy surface films which consume lithium during cycling (which leads to energy fade). However, today's commercial cells suffer 5 to 10 percent ICL, so the issue is one of relative size and scale.

Question. Would the Department be interested in looking at technologies, such as stabilized lithium metal powder, to overcome the issue I described above?

Answer. Yes. In fact, the Department of Energy (DOE) is currently funding a 3-year, \$6.2 million total funding (including a 50 percent industry cost share of \$3.1 million), research and development contract with FMC Lithium to investigate and improve the performance of stabilized lithium metal powders. These powders show promise both for addressing the irreversible capacity loss, and for enabling the use of Li-free cathode materials that exhibit very high capacities, such as sulfur or vanadium oxides. This contract was awarded through a competitive process.

In addition, DOE is funding work on novel electrolytes for use in alloy anode electrodes that exhibit both lower irreversible capacity loss (which enables much higher initial energies) and more stable anode surface films (that enable more stable cycling).

The Department also is preparing a new Funding Opportunity Announcement (FOA), expected to be released in the next several months, focusing on research into higher energy and lower cost batteries, mainly those considered to be "next generation" technology. The responses to this FOA will be competitively evaluated by subject area experts. DOE expects to support the proposals receiving the highest technical merit and overall value scores, with out year funding subject to annual appropriations.

Question. Concerns have been raised about the Loan Guarantee programs treatment of transmission projects under 1705. The concern is that transmission projects, which can be challenging and complex, may be put at the bottom of the application pile rather than the top, simply because of time pressures. A loan guarantee is a "major Federal action" that requires DOE to conduct a NEPA review. With less than 18 months before DOE's authority to issue loan guarantees under section 1705 expires, I would like to know that DOE is prepared to move to conduct and complete the necessary environmental work with all deliberate speed, so that transmission projects move forward along with renewables. What specific steps has DOE taken to ensure that its NEPA review of transmission projects is performed in a timely manner?

Answer. To ensure that project applications are reviewed in a timely manner and NEPA is initiated as soon as possible, the Loan Programs Office has added 5 additional Environmental Protection Specialists in the past 9 months. All of the new Specialists are senior NEPA practitioners with many years of relevant experience. This allows DOE to maximize the management and efficiency of the NEPA review process.

The DOE Loan Programs Office assesses the level of NEPA review required for all projects when entering into the due diligence process. Prior to entering due diligence, a preliminary determination of the level of review required is performed using the environmental information provided in part I of an application. Discussions with the applicants are initiated early in the review process to ensure that environmental considerations are fully understood. This allows applicants to modify, if appropriate, project proposals to ensure that the most expeditious NEPA review process can be performed (e.g., performing an Environmental Assessment (EA) rather than requiring and Environmental Impact Statement (EIS)).

If a NEPA review for the project or project site was performed by another Federal agency, DOE will adopt that review or incorporate all relevant analysis from it into the DOE NEPA document in order to expedite the DOE NEPA review process.

Large transmission projects typically require an EIS. The Council on Environmental Quality (CEQ) NEPA implementing regulations must be followed in preparing an EIS. Those regulations require DOE to undertake a variety of procedural steps during the NEPA review process. These include the publication of notices of

availability and intent to prepare EISs; conduct of public meetings; allowance for public comment periods; incorporation of public comments; and consultation with States, tribes, and other Federal agencies. The Loan Programs Office complies with all of the procedural requirements of NEPA, and has established a notice preparation process that significantly reduces the length previously found in DOE notices while still being fully compliant with the CEQ regulations. The new process reduces the time it takes to prepare these notices, and allows the review process to begin as expeditiously as possible.

Question. How is the Department working with transmission applicants to ensure the efficiency of the NEPA review process is maximized?

Answer. DOE Loan Programs Office Environmental Compliance Division staff talks with transmission project applicants early in the application process to ensure that applicants understand the level of NEPA review that is required, how the process will proceed, and what supporting environmental documentation is necessary to include in the application. DOE also assists applicants with an understanding of the NEPA process and areas of potential environmental concern through live and taped web broadcasts and responses to frequently asked questions posted on the Loan Programs Office Web site. DOE continues to update program solicitations and the program's Web site to include specific guidance that helps to educate potential applicants and expedite the NEPA review process.

Question. What assurances can you give that meritorious transmission projects won't be precluded from selection based on the internal timing of DOE's NEPA review?

Answer. The DOE Loan Programs Office does not base its decision regarding project selection on the level of NEPA review required for a project. However, DOE generally advises applicants that a project requiring an EIS that is not currently being, or has not previously been, undertaken by another Federal agency will likely take 18 to 24 months to complete. In cases where no NEPA work has been initiated, it would be difficult for DOE to complete an EIS and have a Record of Decision signed in time to begin construction and issue a loan guarantee prior to September 30, 2011, the deadline established in section 1705 of the Energy Policy Act of 2005, as amended by the American Recovery and Investment Act of 2009 for both start of construction and issuance of loan guarantees. We also note that, actions (e.g., commencing project construction) taken by the applicant prior to completing the NEPA review process can put at risk the NEPA review and thus the issuance of the loan guarantee. Knowing this, applicants can decide whether it is appropriate to pursue a Federal loan guarantee. Nevertheless, it is the Loan Programs' goal to work with all selected applicants to complete the required NEPA review process in as efficient and timely a manner as possible.

Question. What amount of funding is needed in fiscal year 2011 to fully comply with all clean up agreements? Please provide the amounts on a site-by-site basis.

Answer. The Office of Environmental Management's request of \$6.047 billion positions the program to meet its regulatory commitments, supports reducing the risk associated with our highest environmental risk activities (i.e., tank waste) and achieves footprint reduction across the complex. Page 9 of the budget request provides the amounts on a site-by-site basis, but the table below displays the funding requirements for the major sites.

[In thousands of dollars]

Site	Fiscal Year 2011
Carlsbad	220,245
Idaho	412,000
Los Alamos	196,953
Oak Ridge	432,700
Richland	972,588
River Protection	1,158,178
Savannah River	1,217,799

Question. What amount of funding is needed in fiscal year 2012 to fiscal year 2015 to fully comply with all cleanup agreements? Please provide the amounts on a site-by-site basis.

Answer. Compliance with cleanup agreements is a major factor the Office of Environmental Management takes into account as it formulates its budget requests. Because of the dynamic nature of cleanup agreements, including the fact that milestones are renegotiated based on the results of ongoing characterization and the changing understanding of the extent of contamination, we are not able to determine at

this time the amount of funding needed in fiscal year 2012 to fiscal year 2015 to be in full compliance with all cleanup agreements.

Question. What actions are being taken regarding contracts that are not meeting all cleanup milestones? Please provide specific examples.

Answer. Most contracts executed by the Office of Environmental Management (EM) are performance based, in which the contractor is awarded fee based on the attainment of specific cleanup activities. These activities often support a specific compliance milestone. Thus, if a cleanup action associated with a milestone is not attained, the contractor may not receive as much fee as if it had completed the work in accordance with the milestone. In fiscal year 2009, EM met approximately 95 percent of its 176 scheduled major enforceable milestones so, for the most part, fees were not reduced for missed milestones. Nonetheless, the milestone for cold commissioning of the Waste Treatment and Immobilization Plant was missed and the contractor forfeited significant fee. In addition, where allowable by the contract and depending on the nature of the violation, the contractor may be responsible for the payment of any fines for violations. For example, the New Mexico Environment Department fined the Los Alamos National Laboratory for issues associated with chromium in groundwater. The site contractor paid the fine.

Question. Will you make clean up milestones and funding needs to meet them publicly available?

Answer. The Office of Environmental Management (EM) has its "Environmental Compliance Performance Scorecard" posted on its Web site (<http://www.em.doe.gov/Pages/CompliancePerformance.aspx>). This scorecard is updated on a quarterly basis and provides the status of milestones that were due during the quarter as well as progress on those upcoming in the next four quarters. EM bases its funding needs on the scope, cost, and schedule of cleanup projects. These projects are complex and may have several objectives and milestones associated with them such that identifying funding needs for specific milestones is not feasible.

Question. Over recent years, any Federal funding research and development activities of the Energy & Environmental Research Center (EERC) at the University of North Dakota have always provided a minimum 20 percent cost share as defined under the Energy Policy Act of 2005. In fiscal year 2010, Congress directed that continued funding be provided to the EERC for additional research and development activities as well as funding for a new building to house research and development activities critical to meeting the future energy needs of the United States. However, the building, which will only support research and development projects, has been labeled as a demonstration activity and subject to a 50 percent minimum cost share. Is this typical, and is it appropriate, to place such a large minimum cost share on a building for which the activities occurring within will be research and development, which only requires a minimum 20 percent cost share?

Answer. The cost share determination has been revised to require only 20 percent minimum cost share for the effort to construct the building. The DOE Contracting Officer notified Ms. Sheryl Landis and Principal Investigator at UND of this change in writing on April 1, 2010.

Question. The Energy Independence Security Act of 2007 set a 36 billion gallon mandate for biofuels by 2022. The DOE loan guarantee program can be instrumental in seeing that this goal is reached. However, DOE has yet to issue a single loan for the advanced biofuel industry. The loan program has told the industry they need to bring off-take agreements to get these loans, yet the fuels market does not operate in this manner. What can DOE do to facilitate issuing loan guarantees for advanced biofuel projects in the coming year?

Answer. While third-party supply and/or off-take agreements are not mandatory to satisfy the statutory requirement that the project have a reasonable prospect of repayment of the principle and interest of the guaranteed loan, they are factors which are taken into consideration. For projects that are not supported by third-party supply and/or off-take agreements, the projects need to establish that a viable market exists for the product produced by the projects. The Loan Guarantee Program is working closely with the Renewable Fuels Association to facilitate dialogue with the biofuels companies. As a result of this collaboration, on April 7, 2010, The Loan Guarantee Program held a roundtable discussion with members of the biomass community to discuss issues that the industry faces in obtaining loan guarantees.

Question. The fiscal year 2011 budget for EERE indicates that DOE intends to launch a new biopower initiative. Why is DOE undertaking this new effort now, and what does this mean for biofuels producers who might be looking for a new round of funding for advanced biorefinery facilities?

Answer. The Large Scale Biopower Initiative will accelerate the development of advanced technologies to enable utilizing sustainably harvested biomass for electric power generation. Biomass used for biopower may offer a renewable base load en-

ergy option that could be available year round. These advanced biopower technologies may have positive environmental impacts for the existing utility industry and also benefit local communities providing the biomass feedstock. There are also opportunities to retrofit equipment that is currently idle, such as boilers found in pulp and paper plants, in older and smaller coal-fired power plants, or co-fired in conjunction with coal and use it in the biopower production process. Additionally, biopower is an option for meeting State-level Renewable Portfolio Standards (RPS). The Biopower Initiative aims to accelerate the deployment of biopower technologies to enable biopower deployment as soon as 2013 in support of potential future RPSs.

Furthermore, a component of the proposed advanced technologies for the introduction of biopower is the development of densified biomass-derived intermediaries—such as torrefied biomass and bio-oil—which are technologies that can be leveraged in the production of biofuels.

The fiscal year 2010 appropriation and fiscal year 2011 request do not include funding for another integrated biorefinery solicitation. The integrated biorefinery funds requested incrementally fund projects previously selected in fiscal year 2007 and fiscal year 2008. Furthermore, the number of integrated biorefinery facilities was significantly expanded by Recovery Act funding.

Question. The NNSA budget request includes a 5 year spending plan for each element of the budget request. A 5 year spending plan shows the fluctuation of spending year to year, when certain programs and projects reach peaks or are finished, and provides a sense that the requested fiscal year 2011 budget is grounded in some longer term plan. Outside of NNSA, the rest of DOE does not provide 5 year spending plans. Mr. Secretary, can you provide 5 year spending plans for all DOE programs and projects as NNSA does now?

Answer. I believe that considering 5 year budget implications provides useful guidance for internal formulation and planning and the Department is making significant strides in that direction.

A more in-depth internal consideration of multi-year budget implications will offer the Department many advantages including enhancing transparency and improving long-term planning. We are currently establishing a Department-wide budget formulation and execution system that will be better able to build and track 5 year budget plans.

Question. You did not request new funding for the Clean Coal Power Initiative this year. Also, the Obama administration announced a multi-agency CCS Task Force with the Office of Fossil Energy and EPA as the co-leads on February 3, 2010. The goal of that effort is to work to overcome the barriers for widespread deployment of CCS within 10 years and to bring 5–10 commercial scale projects on line by 2016. Can you tell me what you hope to achieve with CCPI Round III (from the Recovery Act) projects?

Answer. The third round of Clean Coal Power Initiative (CCPI) demonstration projects is well underway and is focused on developing projects that utilize carbon capture and storage technologies and/or beneficial reuse of carbon dioxide. Five projects have been selected, two focusing on pre-combustion carbon capture in greenfield integrated gasification combined cycle (IGCC) plants and three post-combustion capture projects using slipstreams at existing pulverized coal (PC) power plants. Thus far, the Department has signed cooperative agreements on three of these projects (two IGCC and one PC). Each of these projects will be demonstrating a different carbon capture technology to provide the market a diversity of CO₂ capture approaches. These projects will be storing CO₂ in either saline aquifers or using it for enhanced oil recovery and will conduct extensive monitoring, verification, and accounting to ensure permanence of storage. Four of the five projects selected will be capturing and storing CO₂ in excess of 1 million tons per year.

Question. When do you plan to announce, how much would you hope to fund, and what would be the focus of a CCPI Round IV?

Answer. Commercial-scale demonstration of carbon capture and storage (CCS) technologies is a key step to generate data and expand our knowledge of how these systems work when integrated with an operating power plant. The Department is focused on successfully implementing the five selected CCPI Round III demonstration projects, as well as other CCS demonstrations currently managed by the Department (a CCPI Round II project, FutureGen, and the multiple Industrial CCS demonstration projects). These demonstrations are critical for proving integrated operation and safe and effective long-term storage at scale. The R&D focus is on developing advanced technologies to improve cost competitiveness of CCS technologies. These demonstration projects will provide important information to help guide future budgetary decisions.

Question. How will each of these CCPI projects feed into the CCS task force goals?

Answer. One of the chief goals of the Carbon Capture and Storage (CCS) Task Force is to develop a proposed plan to overcome the barriers to the widespread, cost-effective deployment of CCS within 10 years, with a goal of bringing 5 to 10 commercial demonstration projects online by 2016. All five Clean Coal Power Initiative projects selected in the third round and one selected in the second round are presently scheduled to begin plant operation and CO₂ sequestration during or before 2016.

Question. For the last 3 years, the Energy and Water Subcommittee has provided funds to begin exploring expansion of a 5th SPR site in Richton, MS. This site plus expansions at two other existing sites were intended to expand the SPR to the 1 billion barrel level. This was the policy pushed by Vice-President Cheney. It is my understanding that a June 2007 DOE study found that it would cost in the range of \$21 billion to build and fill that expansion effort.

What is the Obama administration's policy on the SPR and the costs and need for site expansion? Are there better ways to achieve energy security? Why are you proposing to us \$71 million of prior year balances for operations and management for fiscal year 2011?

Answer. The administration is currently reviewing Strategic Petroleum Reserve 1 billion barrel expansion policy. While this is occurring, the fiscal year 2011 budget proposes the cancellation of \$71 million in balances from prior years appropriated for expansion activities at the proposed Richton, Mississippi site and use of these balances to partially fund the SPR's requirements in fiscal year 2011. The SPR requires \$209,861,000 for the management and operations in fiscal year 2011.

Question. The administration has not requested R&D funds for the oil and gas programs. Both the Bush and Obama administrations have done that in their budget requests. At the same time, in the fiscal year 2010 conference report, Congress required the DOE to come up with a research development and demonstration strategy and provide a report that outlines these activities. The E&W conference report provided \$20 million for that effort and requested a report. Despite not requesting funds, will you commit to completing that strategic plan with a multi-year technological horizon and also engage the private sector and academic interests?

Answer. As directed in the appropriation bill, a research and development strategy for unconventional oil, gas, and coal resources is being developed. The draft strategy will include the resource opportunities and technology applications and we will seek input from academia and the private sector. The provided funds will be used for unconventional oil, gas, and coal resources projects identified in the strategy. A funding opportunity announcement seeking proposals for new projects will be issued soon.

Question. The ITER project faces significant delays. The construction completion date has slipped from 2016 to 2022 and the total project cost estimate has increased from \$14 billion to \$20 billion. The ITER International Office managing this project still does not have a final design or a schedule and cost baseline. These delays have increased U.S. costs and further delays could put at risk the U.S.'s total project cost estimate of \$2.2 billion for construction. What has the United States done to mitigate risk?

Answer. The Department's senior leadership has been vigorously engaged in the ITER project over the past 8–9 months. We are currently working with the other ITER members to achieve a final, credible project baseline and a change in ITER Organization management that will ensure robust management during the construction phase. We are making progress with the other members to address these issues. We hope to have some of them resolved by the June 2010 ITER Council Meeting (IC-6). We anticipate using the fiscal year 2011 funding request to make substantial progress on the design, R&D, and long-lead procurement activities for the U.S. hardware contribution, as well as to keep the United States on track to meet its critical path commitments to the project.

Question. Will the United States consider withdrawing from ITER if delays continue and costs escalate beyond the \$2.2 billion U.S. commitment?

Answer. DOE's policy is to aggressively manage projects to maintain cost and schedule. DOE constantly assesses projects to improve performance as prescribed by DOE Order 413.3A. ITER is no exception. We have made progress in addressing ITER performance concerns. We hope to determine the project baseline schedule and improve the management issues shortly to allow for much more orderly and efficient management of the ITER project. The Department is committed to maintaining the established CD-1 cost range for the U.S. contribution to the project and, in fact, has resisted entreaties by the ITER Organization to accept more scope.

Question. When will a decision be made by the United States on whether to stay in the ITER program?

Answer. We hope to establish the overall ITER project baseline and improve the management issues by the June 2010 ITER Council Meeting (IC-6). DOE constantly assesses projects to improve performance as prescribed by DOE Order 413.3A.

Question. I think we all agree we need to move to an electric drive transportation system to decrease our dependence on foreign oil and decrease our greenhouse gas emissions. I know that your Department is working toward decreasing battery costs, which are a huge part of the increased incremental cost of electric vehicles. Further, President Obama has set a goal of having 1 million electric vehicles on the road by 2015.

What are the major things that the Department is doing to achieve that goal? What percentage of the Advanced Vehicles Technology budget is going into electric drive vehicles (which can include both battery and fuel cell vehicles)?

Answer. Using Recovery Act funds, the Department is making substantial investments in establishing domestic manufacturing capability and infrastructure development needed to advance the widespread market penetration of electric drive vehicles. These investments totaled over \$2.4 billion, including up to \$2 billion for battery and electric drive manufacturing facilities, \$400 million for transportation electrification projects, and \$20 million in battery research and testing facilities.

Under the Advanced Technology Vehicle Manufacturing Loan Program, the Department made loan commitments of over \$8 billion to domestic manufacturers of advanced technology vehicles, including loans to Ford, Nissan, Tesla, and Fisker Automotive. A substantial fraction of the funds disbursed will support domestic manufacturing facilities focused on producing batteries, plug-in hybrid, and electric vehicles.

Under the Recovery Act's section 48C Advanced Energy Manufacturing Tax Credits, the Department made awards for tax credits for several clean energy manufacturing projects related to electric drive vehicles.

In addition, the Department is conducting ongoing applied R&D to support the development of critical technologies needed for widespread introduction of electric drive vehicles. These efforts include battery development, power electronics and electric motors, and electric drive vehicle systems.

As part of the U.S. Government effort to update the Federal fleet with fuel efficient hybrids and plug-in hybrid electric vehicles, DOE will replace 753 vehicles with hybrids in 2010. This will bring the total number of DOE hybrid vehicles to 888, even as the agency trims the overall size of its vehicle fleet.

In fiscal year 2010, the DOE Vehicle Technologies Program is investing \$145 million directly supporting electric drive technologies, or approximately 47 percent of its total fiscal year 2010 appropriation. Other R&D, such as vehicle lightweighting, indirectly supports vehicle electrification.

Question. What is the Department planning to do to overcome the non-technical barriers to the deployment of electric vehicles? Are you dedicating some of your resources to a public information campaign?

Answer. Significant resources are being dedicated to addressing non-technical barriers. The Department is closely collaborating with the EPA to develop and validate fuel economy test protocols for electric drive vehicles. The Department works with the Society of Automotive Engineers (SAE) and various industry standards organizations to establish codes and standards to promote faster widespread market penetration. The Department is working with the National Highway Traffic Safety Administration and the National Fire Protection Association to develop safety standards. The Department has made significant awards to develop educational programs for teachers, student, and the general public.

Resources are being dedicated to a public information campaign, including the work of the Department's Clean Cities program, which is conducting public deployment programs and communicating the benefits of transportation electrification to the general public. The Clean Cities public education and outreach activities provide technical assistance and consumer information related to electric vehicles and other alternative fuels, as well as the infrastructure and service industries needed to support them. In fiscal year 2010, approximately \$10.3 million is devoted to these efforts.

As part of the Recovery Act projects, the Department made competitively selected awards, totaling \$39 million, to 10 consortia of universities, community colleges, science centers, and public relations organizations to develop advanced electric drive vehicle educational programs for student, teachers, technicians, emergency responders, and the general public.

In addition, the Department has launched an outreach effort on its Energy Efficiency and Renewable Energy Web site entitled Energy Empowers, which includes informative articles and videos showing where the Department's efforts are making an impact on people's lives.

Question. How do you expect to leverage what is learned from the demonstration Communities funded by the Recovery Act funds for future widespread deployment of electric vehicles?

Answer. The information obtained and lessons learned as a result of the Demonstration Communities will help to guide future development and deployment efforts. It will also help to instill a greater understanding among the general public of the costs and benefits of electric vehicles. Based on this greater public knowledge and confidence, the Department will be able to leverage greater future investment by local communities in establishing electric vehicle infrastructure.

Question. The electrification (even partial) of medium and heavy duty vehicles could play a significant role in decreasing oil use and greenhouse gas emissions, due to their low fuel economy. Can you describe to me what work the Department is doing in this area and how that is represented in your budget?

Answer. Current electric drive technologies that are being developed for automotive applications (e.g., batteries, electric motors and power electronics) are in general also applicable to both medium- and heavy-duty vehicles. More specifically, R&D on advanced technologies for electrification of medium- and heavy-duty vehicles is ongoing under the 21st Century Truck Program, and under the SuperTruck Program recently initiated with Recovery Act funds. SuperTruck also has additional funding support from annual appropriations.

Truck-stop electrification is being implemented using Recovery Act funds. Cascade Sierra Solutions was competitively-selected for an award of up to \$22.2 million to deploy truck stop electrification infrastructure at 50 sites along major U.S. interstate highways and to provide 5,450 rebates for truck modification to implement idle reduction technologies.

Medium- and heavy-duty electric drive vehicle awards, competitively-selected using Recovery Act funds, include an award of up to \$45 million to a consortium of California's South Coast Air Quality Management District (SCAQMD) and 50 different utilities and fleets to develop a fully integrated, production plug-in hybrid system for Class 2–5 vehicles (8,500–19,500 lbs gross vehicle weight) and demonstrate a fleet of 378 trucks and shuttle buses; Navistar was awarded up to \$39 million to develop and deploy 400 advanced battery electric delivery trucks (12,100 lbs gross vehicle weight) with a 100-mile range; and Smith Electric Vehicles was awarded up to \$32 million to develop and deploy up to 100 electric vehicles, such as "Newton" medium-duty trucks.

Question. What are you currently doing to investigate the possible uses of automotive grade lithium ion batteries in stationary applications, both with new and somewhat depleted batteries?

Answer. Several electric drive vehicle battery manufacturers are assembling battery packs for stationary grid applications using automotive grade lithium ion battery cells developed with DOE funding support. For example, A123Systems has built large battery systems from high power HEV batteries to support grid frequency regulation. DOE anticipates that some of battery production facilities being established with support from the Recovery Act will produce batteries for both vehicle and utility grid applications.

In addition, the DOE Office of Electricity Delivery and Energy Reliability, with the help of Sandia National Laboratory, is studying the value propositions of various energy storage systems, including "new" automotive grade lithium-ion batteries, for stationary grid applications such as load leveling, peak demand management, all of which could help defer the need to build peaking power plants.

For "somewhat depleted" batteries used in automotive applications, the Vehicle Technologies Program (VTP) initiated a program to investigate the merits of repurposing or re-using the batteries retired from plug in hybrid electric vehicles (PHEV) or electric vehicles (EV) for other applications. This program has several elements including analysis, testing, and demonstration. In the analysis portion, VTP is investigating the value of the "somewhat depleted" batteries for grid, off-grid and other mobile applications. The potential uses in grid applications include home energy storage appliance, community energy storage, substation back up, and electricity storage for wind or solar plants.

Question. How do you anticipate the battery and storage hub integrating with existing programs in OE and EERE as well as ARPA-E?

Answer. The Department formed an Energy Storage Working Group to enhance communication and coordination of energy storage research across the Department. This activity is led by the Under Secretaries as well as the principals of the Offices of Science (SC), Energy Efficiency and Renewable Energy (EERE), Electricity Delivery and Energy Reliability (OE), and ARPA-E. The Energy Storage Working Group has initiated an extensive assessment of the DOE-wide energy storage investment by technology readiness level. A staff level group meets more frequently to coordi-

nate day-to-day activities. The involved program offices share detailed project listings and participate in review of each other's new and ongoing projects. They also share information on upcoming Funding Opportunity Announcements and support joint workshops to identify gaps and barriers.

In addition, there is a parallel Hubs Working Group that coordinates the formulation of the Hubs to ensure similar processes and coordination among the Hubs. The Department's Energy Innovation Hubs Oversight Board (Under Secretaries for Energy and Science, their senior scientific/technical advisors, and I) will provide additional assurance that these activities are effectively managed and coordinated. Hub researchers will also be full participants in joint program meetings with researchers and managers from SC, OE, EERE, and ARPA-E to ensure seamless information exchange and to promote coordination and collaboration as appropriate.

Question. In your budget this year, you have cut hydrogen and fuel cell funding by \$37 million from last year's appropriated level. Although this is an improvement over the budget you constructed last year, I'm still concerned that this decrease could be seen as an indication of what you plan to do with this program. The major programs that seem to have been decreased are both Hydrogen and Fuel Cell R&D lines (\$17 million) and the Market Transformation (\$15 million).

Can you give a brief summary of the existing programs that will be discontinued or significantly scaled back in order to make these cuts possible?

Answer. Project deferrals will occur in the Market Transformation subprogram, which includes Early Markets, Safety, Codes and Standards, and Education, and in the Systems Analysis subprogram.

Question. One question I have is why would you so dramatically decrease the funding for the work that is designed to encourage public adoption of the technology, which the American people have funded over the years?

Answer. The Hydrogen and Fuel Cell Technologies funding request provides for a focused effort on key Safety, Codes and Standards activities, which are essential for market adoption of hydrogen and fuel cell technologies. At the same time, data collection and analysis of fuel cell systems will continue on fuel cells that are placed into the market using fiscal year 2009, fiscal year 2010 and Recovery Act funding that together totals nearly \$62 million. Analysis of these data will be conducted to help identify future needs.

Question. Last year, the cuts you proposed in this area would have abruptly terminated funding to 189 ongoing multi-year grants. Will any existing grants be affected this year.

Answer. There will be 22 projects deferred in fiscal year 2011 in Market Transformation (18) and in Systems Analysis (4). Deferred means that an existing project will not be funded in fiscal year 2011, but the funding of that project could be restarted in fiscal year 2012 depending upon appropriations. An existing project is one that began in fiscal year 2010 or earlier. We retain the option to continue funding the project in out years. Deferred does not include new projects that would begin in fiscal year 2011. However, the Program anticipates about 20 new projects will begin in Fuel Cell Systems R&D.

Question. What are your plans for further solicitations in this area to continue building upon the work that the Department has done for many years?

Answer. The Department plans for solicitations in the Fuel Cell Systems R&D and Manufacturing R&D subprograms. For the fuel cell solicitation, a Request for Information has closed, a pre-solicitation workshop has been conducted and preparation of the Funding Opportunity Announcement is underway. DOE anticipates that this solicitation will yield about 20 new projects.

QUESTIONS SUBMITTED BY SENATOR ROBERT C. BYRD

Question. In reviewing the fiscal year 2011 Fossil Energy Research and Development (R&D) budget, I am very troubled. Despite a healthy overall 6.8 percent increase for the Department from the fiscal year 2010 enacted level, the Fossil Energy R&D program is not among the beneficiaries of forward-thinking. It greatly concerns me that the Coal R&D budget is flat funded; the Oil and Natural Gas R&D programs are zeroed out; no new funds have been requested for a Clean Coal Power Initiative (CCPI) Round 4 solicitation; the Fossil Energy Program Direction account is underfunded by \$10 million and underfunded by \$19 million if funding is not provided to administer the Recovery Act activities; the Methane Hydrates work that has been traditionally conducted by NETL is being transferred to the Office of Science; and the Ultra-Deepwater and Unconventional Gas and Other Petroleum Research Fund has been offered up for rescission.

Is the fiscal year 2011 Fossil Energy R&D budget an accurate reflection of your vision for NETL and the Fossil Energy R&D program? Please elaborate.

Answer. The Office of Fossil Energy's (FE) primary objective is to ensure the continued use of traditional fuel sources to provide clean, affordable, reliable energy. The Clean Coal Research Program, implemented by the National Energy Technology Laboratory (NETL), supports the U.S. Department of Energy's (DOE) overall mission to achieve national energy security in an economic and environmentally sound manner. The Fossil Energy Research and Development fiscal year 2011 budget request of \$586.5 million represents more than 75 percent of FE's total fiscal year 2011 budget request and will help maintain DOE's leadership role in addressing the challenge of climate change, deliver to the Nation superior electricity generating technologies, and allow NETL to carry out energy and environmental research, development, and demonstration programs.

The Coal Program has four key priorities: (1) to develop carbon dioxide (CO₂) capture technologies for fossil fueled power plants and industrial sources; (2) to establish safe, reliable CO₂ storage methods including geologic storage and beneficial reuse; (3) to improve the efficiency of both existing and new coal-fired power generation plants; and (4) to implement computer modeling and simulation to accelerate the Research and Development (R&D) path from discovery to commercialization and reduce costs.

There are a number of technical and economic challenges that must be overcome before cost-effective CCS solutions can be implemented to address climate change. Funding from the American Recovery and Reinvestment Act (Recovery Act) is helping to address these challenges. The Recovery Act provided an additional \$3.4 billion for FE R&D to accelerate the commercial deployment of CCS technology, including \$800 million for the Clean Coal Power Initiative. The Recovery Act funding coupled with our annual appropriations will allow FE and NETL to support important advances in capture technologies, efficiency of advanced power generation systems and CO₂ storage technology. The experience gained from capture and storage demonstrations funded by the Recovery Act will be a critical step forward achieving widespread, cost-effective deployment of CCS. In addition to the Recovery Act projects, the core research, development, and demonstration activities that leverage public and private partnerships will support the goal of broad cost-effective CCS deployment in the post-2020 timeframe.

Consistent with administration policy to phase out fossil fuel subsidies, the Office of Fossil Energy requested no funding for oil and gas research and development. In addition, Methane Hydrates R&D is transferred to the Office of Science. Over the next 2 years, the program will phase out production related R&D activities in favor of research to strengthen the fundamental understanding of methane hydrates: their formation and occurrence; their role in geological and ecological systems; their stability in natural and engineered systems; and their role in the carbon cycle. This transfer does not preclude academic institutions and laboratories from applying for grants to support research that addresses these more fundamental questions. This decision is based on the nature of the research and development activities not the type of competitively selected awardees.

Question. The Coal R&D program, which has been flat funded, is focused on developing a portfolio of technology options for future energy plants that will provide significant improvements in efficiency coupled with Carbon Capture and Storage. Given that the Environmental Protection Agency will begin regulating greenhouse gas emissions next year, how do you view the Coal R&D budget as adequate?

Answer. The Fossil Energy Research and Development fiscal year 2011 budget request of \$586.5 million represents more than 75 percent of FE's total fiscal year 2011 budget request and will help maintain DOE's leadership role in addressing the challenge of climate change, deliver to the Nation superior electricity generative technologies, and allow NETL to carry out new and ongoing energy and environmental research, development, and demonstration programs.

In addition, the Recovery Act provided \$3.4 billion for Fossil Energy Research, Development, and Demonstration FER&D to accelerate the commercial deployment of CCS technology.

The coal research and development (R&D) funding request in the President's fiscal year 2011 budget is sufficient to meet current needs. Ultimately comprehensive energy and climate legislation that puts a cap on carbon will provide the largest incentive for CCS because it will create stable, long-term, market-based incentives to channel private investment in low-carbon technologies.

Question. The Oil and Natural Gas R&D programs focus on long-term, high risk research and development, and are implemented by universities, national laboratories, research and development institutions, governments, and industry. These programs involve research and development on unconventional resources, such as

methane hydrates; natural gas locked in tight sands, coals, and shales; stranded oil; and crude oil in non-conventional reservoirs. I am advised that these resources are significant—billions to trillions of barrels and more than 1,000 trillion cubic feet of natural gas; however, technology advancements are required to develop these domestic resources. Furthermore, it is my understanding that the vast majority of the oil wells belong to independent operators eager to apply the technologies that the Department is helping them access. Why is the Department turning its back on these huge potential resources by zeroing out the Oil and Natural Gas R&D programs? What alternatives have you considered to improve the programs, rather than to eliminate them?

Answer. The Methane Hydrates R&D program is proposed to be transferred to the Office of Science. Over the next 2 years, the program will focus on research to strengthen the fundamental understanding of methane hydrates: their formation and occurrence; their role in geological and ecological systems; their stability in natural and engineered systems; and their role in the carbon cycle. This transfer does not preclude academic institutions and laboratories from applying for grants to support research that addresses these more fundamental questions. This decision is based on the nature of the research and development activities not the type of competitively selected awardees.

Question. During our January 2009 visit in my office, I urged you to visit the NETL in Morgantown. Have you made such a visit to any of the NETL campuses? What steps have you taken to schedule this visit?

Answer. Despite several attempts, I have not been able to visit the NETL in Morgantown. I look forward to the chance to see the NETL campuses and I am working with my staff to schedule a visit soon.

Question. I have been supportive of the concept behind FutureGen, and public-private partnership to build a first of its kind, coal-fueled, near-zero emissions power plant, provided that the Federal share of the project was not funded at the expense of the basic Coal R&D account. I understand that you intend to make a go/no go decision on the FutureGen project in the coming weeks.

If you determine that the FutureGen project should proceed, what additional Federal resources will be required to complete the project? How would the administration make up that shortfall? What assurance can you provide me that this shortfall will not be addressed by robbing the Coal R&D account?

Answer. The FutureGen Alliance submitted its Renewal Application to DOE on March 19, 2010.

The latest estimate of capital costs from the FutureGen Industrial Alliance has grown from the earlier one provided.

Currently, the Department is in discussions with the FutureGen Alliance about the most promising funding path forward. If additional funds are warranted, the Department may consider the use of prior year available funds but does not plan to fund the project through offsets from current year research and development (R&D) funding nor from future year requests for appropriated R&D funds.

Question. If FutureGen is a “go,” will the Department be able to obligate funds provided through the American Recovery and Reinvestment Act (ARRA) prior to the September 30, 2010, deadline? If those funds expire, how will the Department address the FutureGen funding needs?

Answer. The Department is planning to obligate the American Recovery and Reinvestment Act funds for the FutureGen project before the September 30, 2010, deadline.

Question. Should a determination be made not to proceed with the FutureGen project, how will the Federal funds that have thus far been made available for the project be redirected?

Answer. On March 19, 2010, the FutureGen Industrial Alliance submitted its Renewal Application to the Department of Energy. Currently, DOE is in discussions with the FutureGen Alliance about the most promising path forward toward a successful project.

Question. What goals of the FutureGen project being met through the current CCPI Round 3 and other funding opportunities provided through the ARRA?

Answer. Some of the environmental goals of FutureGen (emissions of criteria pollutants and mercury) will likely be met under the Clean Coal Power Initiative Round 3 and American Recovery and Reinvestment Act funded awards. The carbon capture and storage goals of FutureGen are more stringent than those required under the alternative funding opportunities; however, some of the projects being pursued under the CCPI would satisfy the 90 percent carbon capture goal and the sequestration goal of a minimum 1 million metric tons per year. The goal of fully integrating an integrated gasification combined cycle powerplant with sequestration in a saline formation remains unique to FutureGen.

Question. After spending most of our meeting last year discussing the importance I place on NETL, I was disturbed that your office did not take the time to notify me that NETL Director Carl Bauer had retired earlier this year. As the Department considers candidates, I urge you to seriously consider filling this position with someone who not only has a strong technical background, but also who knows how NETL is structured, how it works within the Department, and how to build relationships with outside stakeholders. What is the status of the Department's efforts to identify a new NETL director? I expect your office to notify me as soon as a formal decision has been made. I would very much like the opportunity to meet the new Director, and will rely on your office to help coordinate such a visit.

Answer. Your office was notified on April 1, 2010, that the Department named Anthony V. Cugini as the new NETL Director. Dr. Cugini has a strong technical background that includes expertise in a number of key energy and environmental research and development areas, including catalyst development, advanced carbon synthesis, hydrogen production and separation, gas hydrates, and CO₂ sequestration and computational modeling.

During Dr. Cugini's 23-year career at NETL he was responsible for overseeing the Office of Research and Development since 2007, where he supervised an organization with over 400 personnel at 3 NETL locations, which included cutting-edge research and computer simulations conducted onsite as well as that performed through partnerships, cooperative research and development agreements, financial assistance, and contractual arrangements with universities and the private sector.

Dr. Cugini's background provides an excellent combination of leadership abilities, scientific and research expertise, understanding of key technical challenges in clean energy, and familiarity with NETL's programs, personnel, and capabilities. Dr. Cugini's outstanding career at the laboratory has demonstrated a clear ability to continue NETL's important mission at a high level of achievement and accomplishment. The Department looks forward to the lab's continued progress and success under his leadership.

As requested, we will be pleased to arrange a visit with you and Dr. Cugini. The Department's Office of Congressional and Intergovernmental Affairs will contact your office to coordinate a visit.

Question. NETL also serves as a PMC for EERE. Approximately 122 NETL employees support the PMC by implementing 40 percent of EERE's projects and programs, including weatherization, power and vehicles, and buildings and industrial technologies.

The EERE program direction for the PMC at NETL did not allow for annual cost escalation and is \$3 million below what is required to sustain the 122 NETL FTEs supporting the PMC at NETL. If this funding shortfall is not addressed by Congress, how many NETL positions will be eliminated?

Please provide me with an update on the PMC activities at NETL, specifically, the long-term plans to continue this successful NETL-EERE collaboration.

Answer. In fiscal year 2010, the initial NETL Program Direction budget was \$14.2 million (same as fiscal year 2009), with the understanding that after we completed our midyear budget review an adjustment may be made based on need. NETL was notified that its final fiscal year 2010 regular program direction budget would increase by \$1.3 million to \$15.5 million (9.2 percent) above fiscal year 2009. In addition, EERE increased the NETL Recovery Act Program Direction budget by \$3.5 million. Therefore, there is no funding shortfall in fiscal year 2010, and no positions will be eliminated in fiscal year 2010. Upon receiving the fiscal year 2011 appropriation from Congress, EERE will reassess the funding requirements at the PMC locations, and ensure equitable distribution.

NETL has been a successful partner with EERE, and the long-term plan is to continue this working relationship.

Question. As American industries confront the challenges of reducing their carbon emissions and creating the clean energy jobs of the 21st century, how can the Industrial Technologies Program (ITP) help to place on a fast track major innovations in efficiency and cost-effective environmental performance? Certain components of this program were scaled down or terminated in recent years. Through the ITP, or perhaps through other programs, how do you intend to increase the Department's focus on maximizing the research, development, and deployment that can be achieved through public-private cost-share programs, with a view toward achieving bold advancements in the energy-intensive industries that are so vital to the future of America's clean energy job market?

Answer. The Nation faces serious economic, energy, and environmental challenges that are impacting all sectors of the economy, including manufacturing which has seen significant job losses over the past 2 years. Clean energy development and deployment, and a robust manufacturing infrastructure which supports this endeavor

are critical to U.S. energy security, jobs, and reducing carbon emissions, and have been a priority of the administration. In January, President Obama announced the award of \$2.3 billion in Recovery Act Advanced Energy Manufacturing Tax Credits for clean energy manufacturing projects across the United States. Additionally, in November 2009, Secretary Chu announced more than \$155 million in Recovery Act funds for 41 industrial energy efficiency projects across the country. ITP also funded additional Industrial Technical Assistance activities to assist energy-intensive manufacturers cut their energy bills, improve their productivity, and save jobs over the past few years.

Also during the summer of 2009, to help restock the technology development pipeline, ITP issued a funding opportunity announcement (FOA) for grand challenge concept studies to define requirements for transformational industrial processes and technologies that reduce the energy intensity or greenhouse gas emissions by a minimum of 25 percent while providing a return on investment of 10 percent or greater. Selections from this FOA are expected to be completed by May 2010.

Notwithstanding these efforts, ITP recognizes the significant long-term need for process innovation in manufacturing. The fiscal year 2011 budget re-prioritized the ITP program strategy. This new strategy emphasizes crosscutting technologies that provide significant savings across multiple energy intensive industries. ITP will continue to support industry-specific R&D for the energy-intensive chemical industry. The Program is developing breakthrough technologies that significantly reduce process energy- and carbon-intensity, and plans to undertake an exploratory study to identify pathways for significant carbon emission reductions from the cement industry. ITP will continue to work with other energy-intensive industries through its Energy Intensive Process R&D activities, which focus on developing innovative cross-cutting technologies applicable to multiple industries.

In addition, the fiscal year 2011 ITP budget request proposes a new subprogram entitled Manufacturing Energy Systems (MES). The MES program, to be anchored at two U.S. universities, will serve as knowledge development and dissemination centers organized around distinct manufacturing areas with critical technical needs. The centers will reduce the time necessary to translate innovation into commercial product for low or near-zero carbon processes and technologies.

ITP will continue to coordinate with other EERE program efforts focusing on the manufacturing of clean energy products as appropriate.

Question. What action is the Department taking to ensure that public and private clean energy investments will provide benefits to the residents of rural areas, small cities, and towns commensurate with the benefits provided to residents of larger metropolitan areas? How do these efforts differ from last year? Rural areas have long struggled to keep up with critical infrastructure and, if agencies such as yours do not provide clear leadership, these rural areas could be at risk of missing out on major new public works projects and investments. Please provide me with the proportions of the program funding that have been committed to rural areas in the State Energy Program and the Energy Efficiency and Conservation Block Grant program.

Answer. In the absence of statutory requirements, the Department of Energy (DOE) does not require States to allocate any specific proportion of State Energy Program (SEP) funding to either specific geographic areas or topics within the State. Through the SEP, DOE provides formula grant dollars to State Energy Offices (SEO) on behalf of each State. The SEO proposes energy efficiency and renewable energy programs that best fit the unique needs and resources within the State. DOE then reviews and approves the State programs and provides technical assistance as needed.

The American Recovery and Reinvestment Act of 2009 appropriated \$3.2 billion in funding for the Energy Efficiency and Conservation Block (EECBG) Program. Of this total, more than \$2.7 billion is available for distribution in the form of direct formula grants to over 2,350 eligible units of government such as cities and counties, States, U.S. territories, and Federal recognized Indian Tribes. This subtotal has been allocated, as directed by the Energy Independence and Security Act of 2007, to the following categories of grantees:

- Sixty-eight percent to formula-eligible units of local government (cities or city-equivalents with a population of at least 35,000 or that are one of the top 10 highest populated cities of the State, and counties or county-equivalents with a population of at least 200,000 or that are one of the top 10 highest populated counties of the State);
- Twenty-eight percent to States through formula grants;
- Two percent to Indian Tribes through formula grants; and
- Two percent for competitive grants to ineligible cities, counties, and Indian tribes (42 U.S.C. 17153(a)(1–4)).

A State that receives a grant under the EECBG Program shall use not less than 60 percent of the amount received to provide subgrants to units of local government in the State that are not eligible for a direct formula grant from DOE. Hawaii, the U.S. Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands have no ineligible entities and are, therefore, exempt from the requirement to make subgrants. For example, West Virginia received more than \$14 million in direct formula awards to State and local governments. Out of this funding, over \$9.5 million was awarded to the West Virginia State Energy Office, which must subgrant a majority of these funds under the requirement described above.

The authorizing statute does not identify any eligible criteria that are specific to “rural” communities.

Up to \$453.72 million in Recovery Act funds will be awarded through competitive EECBG grants covering two topic areas, as described in Funding Opportunity Announcement DE-FOA-0000148.

The first topic area, the “Retrofit Ramp-Up” program, will award funds to innovative programs that are structured to provide whole-neighborhood building energy retrofits. DOE expects to make 8 to 20 awards under this topic area, with award size ranging from \$5 to \$75 million. Both formula eligible and formula-ineligible entities may apply for funds under Topic 1.

The second topic area, the “General Innovation Fund,” will award up to \$63.68 million to help expand local energy efficiency efforts and reduce energy use in the commercial, residential, transportation, manufacturing, or industrial sectors. DOE expects to make 15 to 60 awards, with award size ranging from \$1 to \$5 million. Only formula-ineligible entities can apply for funds under Topic 2. The award selection official may consider a proposed program’s “impact on, and benefits to, a diversity of communities, including low-income and rural communities” when making selections per page 38 of FOA-0000148.

These EECBG grants will almost certainly benefit small and rural communities beyond the direct recipients by adding substantially to the knowledge base surrounding the implementation and operation of energy efficiency/renewable energy projects (EE/RE). The grants will help to validate and refine best practices in a diversity of communities, including those with low-income and rural characteristics. These new data points will allow future EE/RE projects to be more closely tailored to the economic, environmental, and energy needs of Americans from all walks of life.

Question. With my strong urging several years ago, NETL began performing work under the auspices of the Office of Legacy Management (LM). Most recently, these staff relocated to the new 59,000 square-foot LM Business Center in Morgantown, West Virginia.

I was advised in June 2008 by LM officials that the LM Business Center would house 30 Federal and 60 contractor staff. Please provide me with the current Federal and contractor staffing levels at the Morgantown site. If the goals provided to me in 2008 have not been met, I would like a detailed explanation on how and when these employment goals will be achieved.

Answer. There are currently 9 Federal staff and 73 contractor staff at the Legacy Management Business Center (LMBC) located within the West Virginia University Research Park. None of these employees are associated with the National Energy Technology Laboratory. Over the last several years the Office of Legacy Management (LM) has been able to reduce total LM Federal staffing levels from an allocation of 83 to a current level of 57. This was accomplished by outsourcing work and using Federal employees from other organizations where it would be more efficient. Within the new staffing level there are presently 50 Federal employees in LM. We expect to hire additional Federal employees and 2–3 of those employees would support activities at the LMBC. However, we do not anticipate needing beyond approximately 12 Federal employees at the LMBC in the foreseeable future.

Question. Please describe in detail the functions that are being performed by Federal staff at the Morgantown site. Please provide the same detailed information about the contractor staff.

Answer. Federal staff assigned to the LMBC perform a variety of functions. Those functions include: management and storage of records; information technology infrastructure services; oversight of LM site activities (e.g., ensuring compliance with environmental regulations and management of natural, historical and cultural resources); budget formulation and execution; acquisition support and oversight; and, management of personal property.

The majority of contractor staff at the LMBC are associated with LM’s primary mission at this location which is the management of records and information technology. Contractor staff performs the following types of functions: Information Technology, Records Management, and a variety of business services. These programs

are based in Morgantown and support LM mission activities throughout the LM complex. LM's contractor also provides operation of the National Archives and Records Administration (NARA) certified Records Warehouse and the Consolidated Data Center; including environment, safety, and health oversight and conduct of operations.

Question. Please provide me with a schedule of anticipated closures of DOE nuclear operations across the country. What effect will these closures have upon the demand for the functions performed at Morgantown and the staff levels?

Answer. Responsibility for sites is transferred to LM after active remediation is completed, from programs within the Department of Energy, the Army Corps of Engineers, and from private licensees of former uranium mills. LM anticipates our site responsibility to grow from our current level of 87 to 112 by 2015. A list of sites projected to transfer by the end of 2015 is below. As a majority of the sites are in the Western United States, require only limited maintenance, and have small volumes of records and information we do not anticipate an increase in LMBC staffing levels.

Bear Creek, Wyoming; Gas Hills East, Wyoming; Gas Hills North, Wyoming; Split Rock, Wyoming; Inhalation Toxicology Lab, New Mexico; Lisbon Valley, Utah; Mound, Ohio; Uravan, Colorado; Durita, Colorado; Panna Maria, Texas; Church Rock, New Mexico; Ford, Washington; Gas Hills West, Wyoming; General Electric Vallecitos, California; Mercury Storage Facility (location TBD); Ray Point, Texas; Iowa Army Ammunition Plant, Iowa; Painesville, Ohio; Attleboro, Massachusetts; Combustion Engineering, Connecticut; Highland, Wyoming; Latty Avenue Properties, Missouri; Sequoyah Fuels, Oklahoma; St. Louis Airport, Missouri.

Question. What other LM functions could be housed in the new Morgantown facility?

Answer. LM has consolidated several of its business functions at the LMBC including records storage and management, and information technology infrastructure. In addition, Federal staff at the LMBC provide oversight of certain LM site activities (e.g., ensuring compliance with environmental regulations and management of natural, historical and culture resources); budget formulation and execution; acquisition support and oversight; and, management of personal property.

The documents to be stored, managed, and processed at the facility are inactive, temporary DOE records from the cold war nuclear sites. Records are retrieved to respond to various requests for information. The records currently stored at several NARA Federal Records Centers will be transferred to the LMBC for permanent storage.

Over the last few years LM has worked hard to both evaluate and optimize Federal staffing levels and locations. Based on LM's current functions, the locations where those functions are most efficiently performed, and the distribution of our sites within the country we do not anticipate the transfer of other LM functions to the LMBC.

Question. In February 2010, the President signed the Memorandum creating an Interagency Task Force on Carbon Capture and Storage (CCS). The Memorandum proposed a plan "to overcome the barriers to the widespread, cost-effective deployment of CCS within 10 years, with a goal of bringing 5 to 10 commercial demonstration projects online by 2016."

What is the status of your progress? What are your plans for going forward?

Answer. In the President's Memorandum, the interagency carbon capture and storage (CCS) task force has 180 days to produce a report proposing a plan to overcome the barriers to the widespread, cost-effective deployment of CCS within 10 years, with a goal of bringing 5 to 10 commercial demonstration projects online by 2016. The task force is on track to deliver the report to President Obama in August, 2010. On May 6, 2010, at the Grand Hyatt Washington from 8:30 a.m. to 6 p.m. a public meeting was held to provide input to the interagency CCS task force.

Question. How do these goals correlate with the Environmental Protection Agency's efforts to regulate mobile sources of greenhouse gas emissions this year and stationary sources of greenhouse gas emissions next year?

Answer. An area that the interagency carbon capture and storage (CCS) task force will investigate is the legal and regulatory issues associated with CCS. Per the Presidential Memorandum, the Task Force will consider how best to coordinate existing administrative authorities, as well as identify areas where additional administrative authority may be necessary.

Question. In June 2009, the administration released a Memorandum of Understanding (MOU) entitled, "Implementing the Interagency Action Plan on Appalachian Surface Coal Mining."

The MOU noted that "Federal agencies will work . . . to help diversify and strengthen the Appalachian regional economy and promote the health and welfare

of Appalachian communities. This interagency effort will have a special focus on stimulating clean enterprise and green jobs development . . .”

What new programs is the Energy Department proposing to advance economic diversification in Appalachia?

Answer. This question should be directed to the U.S. Department of the Army, the U.S. Department of the Interior, and the U.S. Environmental Protection Agency. See http://www.epa.gov/owow/wetlands/pdf/Final_MTM_MOU_6-11-09.pdf.

Question. What new resources is the Energy Department requesting to advance economic diversification in Appalachia?

Answer. The Department of Energy is not a party to this Memorandum of Understanding. This question should be directed to the U.S. Department of the Army, the U.S. Department of the Interior, and the U.S. Environmental Protection Agency. See http://www.epa.gov/owow/wetlands/pdf/Final_MTM_MOU_6-11-09.pdf.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

Question. Secretary Chu, I am pleased to once again see an increase in overall funding for EERE, because we’ve got to move forward toward a clean energy economy and the work being done at the Department will help keep us on that path.

I am concerned, however, that for the second year in a row the Water Program has been cut—by 25 percent this year—while nearly every other renewable energy program receives increased funding. As you know, the National Hydropower Association recently released a report citing the potential for additional, emissions-free hydropower—and hundreds of thousands of jobs that could be created.

We must continue investment in our existing hydro facilities to allow us to use those flexible resources to firm up intermittent renewable resources like wind and solar. And we must also increase our work to develop new marine and hydrokinetic technologies that may also be able to act as baseload resources in the future.

Given these recurring funding cuts for this important program, I am not assured that the administration sees the value of water as a clean energy source.

Can you please tell me what your goals are for the Water Power Program, specifically with regard to conventional hydro as well as marine and hydrokinetic technologies?

And is the Department using the Marine Science Laboratory at Sequim, Washington—the Department’s only national lab facility located on water—to help achieve these goals, particularly to understand the environmental impacts of energy devices as the industry begins to test at scale?

Answer. The Department of Energy is excited about the potential to develop emerging marine and hydrokinetic energy (MHK) technologies and untapped hydropower resources. The \$50 million appropriated for Water Power in fiscal year 2010 has allowed the Department to continue aggressive efforts to develop advanced water power technologies, and we are working diligently to ensure that this increased level of funding is spent carefully and wisely. DOE believes that the \$40.5 million requested for Water Power in fiscal year 2011 is sufficient to continue the program’s ongoing efforts to develop water power technologies and accelerate the market adoption of these technologies. This funding is complemented by up to \$31.7 million in Recovery Act funds for projects to deploy advanced turbines and control technologies at hydropower facilities, thereby boosting generation of environmental sustainable hydropower and stimulating job creation and economic activity. As the size of the Nation’s water power resources and the ability of emerging technologies to capture that energy becomes clearer, the Department will be better able to determine if higher funding levels are necessary.

The Department’s goals for MHK energy technologies are to determine the baseline costs of energy and identify key cost drivers for MHK generation, to quantify the total MHK resource available by resource type, and to address barriers to the siting and permitting of these devices. For conventional hydropower, the Department’s goals are to facilitate the deployment of new sustainable hydropower generating capacity, including timely and low-cost upgrades at existing hydroelectric facilities, the powering of non-powered dams and constructed waterways, and assessing the potential for new small hydropower deployment. The Department also works with other Federal agencies, such as the Army Corps of Engineers and the Department of the Interior’s Bureau of Reclamation, to support the development of environmentally sustainable hydropower by increasing energy generation at Federal-owned facilities and exploring opportunities for new development of low-impact hydropower.

The Water Power Program has funded MHK technology research at Pacific Northwest National Laboratory (PNNL) since fiscal year 2008, and the capabilities of

PNNL's Sequim Marine Science Laboratory have been integral to that effort. Given Sequim's coastal location and strong marine environmental research capabilities, much of the work undertaken at the Sequim facility has been related to environmental baseline studies for MHK technology applications. PNNL is currently leading an effort to identify, analyze, and predict environmental impacts from MHK energy production. After prioritizing risks, PNNL will conduct experiments and field trials to investigate high priority environmental impacts to reduce uncertainty, and to gain insight into the cumulative impacts of multiple stressors from devices and arrays.

Question. Mr. Secretary, as you may know in January, as Chairman of the U.S.-China Inter-Parliamentary Group, I led a Congressional Delegation trip to China. Part of our charge was to focus on a variety of bilateral issues, including energy. If our two nations are to aggressively deploy clean energy technologies, much needs to be done to spur innovation across the energy sector to increase renewable energy use as well as reduce greenhouse gas emissions from coal fired electricity plants.

I know that DOE is doing much to drive a green energy future, and recognize the need to continue to invest in fossil energy programs. We know that current available technology is too expensive. I am concerned that the fiscal year 2011 DOE budget request seems to be missing programs that will drive the innovation we need now for successful deployment in a decade.

Can you please comment on DOE's intentions for developing a significant national program that rapidly accelerates revolutionary approaches to carbon capture?

Answer. In the fiscal year 2011 budget request the Office of Fossil Energy (FE) requested over \$84 million for capture technology. This funding will support bench and laboratory scale R&D for post combustion capture techniques such as solvents and sorbents. Pre-combustion capture funding will support the development of novel bench scale pre-combustion capture technology. In addition, the Advanced Research Projects Agency—Energy (ARPA-E) is supporting CCS research and development of next generation carbon capture technology with funds provided by the American Recovery and Reinvestment Act. The Office of Science is supporting R&D into the design of novel materials and separation processes for post-combustion CO₂ capture, as well as catalysis and separation research for novel carbon capture schemes that might be incorporated into the design of future power plants. These three programs, which closely coordinate, support the research and development necessary to reduce the cost and energy penalty associated with carbon capture technologies.

Question. Also, can you please tell me what methods the Department is looking at in addition to carbon capture and sequestration, such as carbon capture and recycle?

Answer. The American Reinvestment and Recovery Act allocated to the Department \$1.52 billion to support industrial carbon capture and storage (CCS) projects. Of the \$1.52 billion, \$17.4 million was allocated for industrial CCS applications is to test innovative concepts for the beneficial use of CO₂. Historically, enhanced oil recovery projects have been injecting CO₂ to stimulate the production of oil, and that is expected to expand as CO₂ becomes more readily available. In addition, FE has a solicitation, which closed April 20, 2010, targeting technologies that utilize CO₂ to produce products at a cost of less than \$10 per metric ton.

Question. Mr. Secretary, can you give me an update on the implementation of the U.S.-China Energy Research Centers? How are you implementing this program within the various offices at DOE and are you engaging the national labs who are also developing relationships with their Chinese counterparts?

Answer. On March 30, 2010, the Department released a funding opportunity announcement (FOA) with the availability of \$37.5 million over the next 5 years to support the U.S.-China Clean Energy Research Center (CERC). Funding from DOE will focus on advancing technologies for building energy efficiency, clean coal including carbon capture and storage (CCS), and clean vehicles. These are areas in which the United States and China have a shared interest in further developing technology to help our countries meet clean energy and climate change goals. Awards will be made to consortia with the knowledge and experience to undertake first-rate collaborative research programs. These consortia will help bring together top talent from both countries and are expected to generate key technological advancement through genuine collaboration between U.S. and Chinese researchers. The DOE funding will only go to American researchers and institutions, and grantees will match the Department's funding dollar for dollar, bringing the United States' contribution to \$75 million. All proposed projects must involve researchers from both countries. DOE anticipates notifying the applicants selected for awards and making the awards in summer 2010.

The implementation of the U.S.-China Clean Energy Research Program will be administered by the Office of Policy and International Affairs, through a CERC sec-

retariat, to be established and housed at the DOE headquarters. The secretariat will act as the principal coordinator of activities under the CERC. The Office of Fossil Energy (on clean coal and CCS), and the Office of Energy Efficiency and Renewable Energy (on building energy efficiency and clean vehicles) will have strong roles in supporting the CERC activities, along with the support from DOE national laboratories. In addition, DOE national laboratories are also eligible to apply as prime applicants.

Question. I know you when you visited the Pacific Northwest National Laboratory last year that you toured the Electricity Infrastructure Operations Center (EIOC). This center will be an important platform for advancing the smart grid and will be utilized in the Pacific Northwest Smart Grid Demonstration that is funded by the Recovery Act. What are DOE's plans to follow up on that investment, and what must DOE and the Federal Government do to ensure that the transition to the smart grid is completed?

Answer. DOE research and development funds helped establish the EOIC, and we expect it to continue to be a great asset in facilitating further research, as well as in validating technologies, systems and processes that advance the concept of a smart grid. Given its unique capabilities, we expect ongoing research, development and demonstration funds will continue to support Pacific Northwest National Laboratory, and the EOIC.

The transition to a smart grid is a process that will take years, and the role of the Federal Government is to ensure that progress is prudent, efficient, and validated by solid research. The Federal Government can also work to advance the transition by testing the next generations of technical and policy solutions to improve the electricity infrastructure, in collaboration with industry, academia, and our state partners.

QUESTIONS SUBMITTED BY SENATOR TOM HARKIN

Question. Dr. Chu, the Energy Policy Act of 2005 included the Renewable Fuel Standard commonly referred to as RFS2. It requires use of 15.2 billion gallons of biofuels in 2012, and 20.5 billion gallons in 2015. It is clear most of that fuel will be in the form of ethanol. At the same time, we are facing a challenge with integrating these increasing volumes of ethanol into our transportation fuels market. Specifically, these volumes go beyond the "ethanol blend wall" meaning the amount of ethanol that can be utilized in form of E10—fuel blends of 10 percent ethanol in gasoline. Now that problem will be somewhat alleviated if EPA grants a waiver that allows use of blends such as E15 in all highway vehicles, but what we really need are more flex-fuel vehicles that can use higher blends and more refueling stations that offer higher blends through the use of blender pumps.

Your Clean Cities Program is increasing the use of alternative fuels, but your budget for that program allocates over half of funding to support electric vehicles.

Given that electricity already is widely available while electric vehicles are still pretty scarce, and that we have this ethanol market limitation, why aren't you putting the major emphasis on your clean cities program on availability and use of higher ethanol blends?

To me, it's very clear that ethanol offers by far the greatest potential for reducing our dependence on petroleum for at least the next decade. Isn't it in our national energy security interest to make sure we can take full advantage of the petroleum displacement potential that ethanol provides?

Answer. DOE has continued to demonstrate strong support for deployment of E85 blends with recent financial assistance awards. In 2009, Clean Cities awards were announced that will help build an additional 198 E85 refueling locations during the 2010–2012 timeframe in more than 20 States through the Recovery Act and under a separate set of Clean Cities infrastructure grants. In 2006, DOE Clean Cities helped fund 169 E85 stations. Moreover, DOE Clean Cities continues to support the more than 2,000 E85 stations in the United States by providing user-friendly web-based station locators and mapping tools for convenient trip planning for flex-fuel vehicle (FFV) drivers and owners. In addition, in fiscal years 2007–2010, the Department funded a \$45 million test program focused on intermediate blends of ethanol in gasoline for blends up to E20. This program, intended to provide high-quality data to the Environmental Protection Agency for use in considering current and future ethanol blend waiver requests, covers materials compatibility, emissions, long-term durability of exhaust emissions control systems, and operational issues for E15 and E20 for new and legacy vehicles and non-road engines. The Department is also evaluating the compatibility of new and legacy fueling infrastructure equipment with intermediate blends; a portion of this infrastructure testing has been

funded through the Clean Cities Program. In a separate but related effort, Clean Cities has also engaged in studies of blender pumps and E85 fuel quality surveys.

For the fiscal year 2011 budget request, a portion of the Clean Cities budget is focused on activities related to electric vehicles and the infrastructure needed to support them. It is estimated that 15 to 20 new battery electric and 9 to 10 new plug-in hybrid electric vehicle models will be introduced by 2012, and that a million of these vehicles will be on the road by 2015 (which all need recharging stations). In addition, communities where electric vehicles are being introduced will need training for first responders, equipment installers and vehicle technicians. Clean Cities funding proposed in the fiscal year 2011 budget request would support these efforts and strengthen the participation of local coalitions.

While there is no question that high-level ethanol blends are important for U.S. energy security, the combination of E85 flex fuel technology and electric drive offers even greater potential. For example, General Motors has mentioned the possibility of a Chevy Volt extended range electric vehicle that could be E85 flexible fuel capable after 2010. It is an understatement to say that the combination of a plug-in vehicle that can also run on ethanol instead of petroleum will be an important event for promoting petroleum reduction—a key mission of the Clean Cities program and the Office of Energy Efficiency and Renewable Energy.

Question. The Artificial Retina Program at DOE has been an incredible success and was recently named a 2009 R&D 100 Award Winner. The real potential this program has to restore sight to over 10 million blind people in the United States could be a historical accomplishment for the DOE Science Program. The fiscal year 2011 budget includes only \$4 million for this program, and it includes detrimental language to terminate the program at DOE at the completion of the 240 electrode device, rather than the 1000 electrode device, which was the original intention of the program. While NIH has been a partner with DOE in doing the clinical trials, they simply cannot pick up the program now and develop the 1000 electrode device. With over \$70 million already invested in this program at DOE, I think it would be a gross mistake to prematurely end this program when it is so close to developing a technology that would help so many people. Given that this program has met every benchmark thus far, and DOE has already made a substantial investment in the program, why is DOE terminating the successful Artificial Retina Program when the final goal of the 1000 electrode device is so close to being achieved?

Answer. The original intention of this interagency program was to develop robust partnerships synergistically linking the strengths of the national laboratory, academic, and industrial researchers through proof of concept demonstration and engineering of a retinal prosthetic device. DOE supports fundamental research and technology development to advance DOE missions in energy, climate, and the environment, and is working to transition this successful project to other agencies with more direct mission responsibility for clinical research. The current 60 electrode device is in the midst of clinical trials, and early clinical trial results have allowed researchers to improve the design and fabrication of the 240 electrode device. Synthesis of the individual components of the 240 electrode device is expected to be complete at the end of fiscal year 2010. The \$4 million in the fiscal year 2011 budget is designated to facilitate an orderly transition of the device through pre-clinical testing and complete additional technology research required to bring the device to readiness for clinical trials led by partnering organizations. Increasing the number of electrodes does not guarantee improved clinical performance. The benefits of the 240 electrode Artificial Retina device will not be assessed until it enters formal clinical trials and statistically significant patient results are demonstrated. Since the early clinical testing results are just emerging for the Argus II 60 electrode device, the results from the 240 electrode device testing will be critically important to design any further device improvements and to determine whether those improvements should be specifically focused upon higher electrode density or improved neural and visual processing software development. Through implementing device improvements informed by clinical trial testing of the 240 electrode device, the goal of improving visual acuity to many people can be best realized.

DOE has contributed to the success of the Artificial Retina Project through its contributions in materials sciences and microfabrication of components, and it is important to transition the work to organizations that have a more direct role in the clinical testing and development and application.

QUESTIONS SUBMITTED BY SENATOR ROBERT F. BENNETT

Question. Approximately \$2.5 billion (7 percent) of the \$36.7 billion appropriated in the American Reinvestment and Recovery Act, enacted over a year ago, has been

spent. While around \$25 billion has been obligated, it's the funds that have been "costed" that mean jobs and results.

Why is the pace so slow getting these funds out?

Answer. As enacted, the Recovery Act's estimated cost of \$787 billion came in three pieces: roughly a third in tax cuts directly to the American people, another third in emergency relief for hard-hit families, businesses, and State governments, and a third in investments in the infrastructure and technology, creating platforms for economic growth. The Department of Energy's Recovery program focuses on the third leg, accelerating innovation to lay the foundation for long-term economic growth.

From the first day after the Recovery Act was signed into law, DOE has been focused on moving the money out the door quickly to create jobs and spur economic recovery. We have used competitive processes to select exceptional projects. We have streamlined DOE operating processes across the board. We are providing unprecedented transparency and insist on clear accountability every day.

DOE has \$36.7 billion in appropriations, including \$32.7 billion in contract and grant authority and \$4 billion in loan credit subsidy authority. We have made selections for over \$32 billion (98 percent) of our contract and grant authority. In total, we have obligated \$29.4 billion (90 percent) and outlaid over \$5.1 billion (16 percent). Environmental Management has paid out \$2.3 billion in outlays and weatherization has now outlaid over \$1 billion. Working with Treasury, we have also supported the processing of \$7 billion in additional tax awards: \$4.7 billion in 1603 grants in-lieu of tax credits and \$2.3 billion in 48c tax credits.

We will be finalizing our remaining selections in the next 3 months with the exception of loan guarantees. DOE will finalize selection of section 1705 loan guarantees by September 30, 2011.

We have obligated \$29.4 billion (90 percent of contract and grant authority). We are on track to obligate nearly 100 percent of our contract and grant authority by September 30. Since the March 10 resolution of the Smart Grid Investment Grant tax issues, OE has fully obligated all 100 Smart Grid Investment Grant projects and most of the Smart Grid Demonstration Grant projects. We sent nearly 20 HQ staff to the field to help in the negotiation process of the Retro-fit Ramp-Up awards. In just 5 weeks, they fully obligated all 25 awards (\$450 million). For all new selections, programs are using SWAT teams to ensure expeditious obligation. No major delays are expected. Fossil Energy and Loans will be the last to obligate.

We have outlaid over \$5.1 billion (16 percent of our contract and grant authority). We outlaid nearly \$700 million in May and are on our way to \$750 million in June. In addition to the various renewable energy research, development and deployment programs, three of the department's largest Recovery Act programs the Environmental Management Program and the Weatherization Assistance Program, and the Science Program are all at run rate. In the last 2 months, the vehicles program has ramped up operations and surpassed its May target by nearly \$18.5 million. Over the last 3 months, we have seen an average payment growth rate of 18 percent month-to-month. We outlaid \$472 million in March and \$569 million in April. We expect to hit reach our optimal monthly spend rate of \$800 million to \$1 billion this quarter.

In the first quarter of 2010, Department of Energy created and saved nearly 29,000 direct FTEs jobs at the prime and sub-recipient level. DOE has seen an average 50 percent quarter-to-quarter increase in recipient reported jobs. Recovery Act investments in the Office of Weatherization and Intergovernmental Program (OWIP) and Environmental Management program have seen the largest job creation. Going forward, DOE expects significant job creation from Recovery Act renewable energy and smart grid projects.

Question. When do you expect to have the full amount actually spent—not just obligated?

Answer. DOE Recovery Act appropriations are funding 144 projects, aside from loan guarantees, in 10 different program offices (e.g., Energy Efficiency, Fossil Energy, Science, etc.). Each of these projects has a unique structure and statutory time horizon for the deployment of these funds (i.e., R&D *vs.* infrastructure investment). For example, DOE's Office of Environmental Management has allocated nearly \$6 billion in Recovery Act funding to 17 sites with a goal to complete their work by the end of fiscal year 2011. Large scale, heavy infrastructure projects in the Fossil Energy program require extensive design and construction stages that will take their Recovery Act spending out until fiscal year 2014. As an agency, DOE expects to spend 70 percent of its ARRA funds by the end of CY2011, nearly 90 percent by CY2012, and 100 percent by CY2015.

Question. Why are there still unresolved tax issues for smart grid grantees, more than a year after enactment of the bill, and what is the Department doing to address them?

Answer. The tax issue has been resolved for the Smart Grid Investment Grant program, and finalization of the grants is well underway. On March 10, 2010, the Internal Revenue Service announced a determination on the tax treatment for grantees receiving Recovery Act funding under the \$3.4 billion Smart Grid Investment Grant program. Under the revenue procedure, the Internal Revenue Service is providing a safe harbor under section 118(a) of the Internal Revenue Code (IRC) for corporations receiving funding under the Smart Grid Investment Grant program. With the determination that Smart Grid Investment Grants to corporations are non-taxable, corporate utilities will be able to launch their investments with a clear indication of the tax status for their projects.

The Internal Revenue Service revenue procedure specifically did not apply to Smart Grid Demonstration grants because the programs, which are authorized by different statutory provisions, differ in several ways that may affect whether DOE's financial assistance can qualify as permanent contributions to capital under section 118(a). As a result, grantees under the different programs will require separate explanations for how the tax code applies. There are also fewer corporate recipients of Smart Grid Demonstration grants than of the Smart Grid Investment Grants. DOE has asked recipients of Smart Grid Demonstration grants to identify whether such tax treatment is applicable and necessary for the success of their projects and will consider recipients' responses in determining a path forward. Regardless, each recipient is free to pursue use of section 118 on its own, as well as any other tax treatment it believes is applicable.

Question. Approximately \$6 billion was provided for the Environmental Management (EM) program in the Recovery Act. A number of the sites are not currently on track to meet cost and schedule estimates. Why is this the case, and what steps is EM taking to address these issues?

Answer. The Recovery Act requires all funding to be obligated by the end of fiscal year 2010, and spent within 5 years of obligation. The Office of Environmental Management (EM) established a very aggressive goal of spending the majority of the money by the end of fiscal year 2011 in order to maximize the creation of jobs. The EM Recovery Act program has obligated more than \$5.4 million of the \$6 billion of Recovery Act funding, and more than \$2.3 billion has been paid out. Approximately 10 percent of the 91 EM Recovery Act projects are now scheduled to extend into fiscal year 2012. In regard to project performance, a recent GAO report identifies that a number of the Recovery Act projects are not currently meeting their original cost and schedule goals. Examples of these project variances include: greater than initially planned volumes of contaminated soils, resulting in higher costs for excavation and disposal; delays due to changes in initial waste type characterization assumptions; and contract issues causing delays in work start date.

EM Senior Management continues to be fully engaged with all the Recovery Act projects on a regular basis, including monthly project reviews with each of the sites. EM Management also requires each project with less than satisfactory performance to develop a recovery plan that fully defines the issues and contains the corrective actions necessary to bring the projects back on-track and within cost and schedule. At this time it appears that all of the projects are recoverable and will meet Recovery Act performance objectives.

Question. The President recently named a prestigious group of individuals to form a Blue Ribbon Commission on Nuclear Waste. The chairmen are Lee Hamilton and General Brent Scowcroft. The Commission is expected to make recommendations within 18–24 months.

What should we expect from the Blue Ribbon Commission?

Answer. In my comments at the first open meeting of the Blue Ribbon Commission on America's Nuclear Future (the Commission) on March 25, 2010, I set forth several of my expectations for the Commission, which include a comprehensive review of the science, technology and other factors that influence the back-end of the fuel cycle. In addition, the Commission's charter specifies that this comprehensive review includes an evaluation of alternatives for storage, processing, and disposal of civilian and defense used nuclear fuel, high-level waste, and materials derived from nuclear activities, to be followed by advice and recommendations on a new plan to address these issues. I am confident the Commission will render useful advice and recommendations and fulfill its mission and responsibilities under its charter.

Question. How aggressive will the administration be in pursuing a permanent solution to the back end of the nuclear fuel cycle?

Answer. The establishment of the Commission speaks to the administration's commitment to a well-considered policy for managing used nuclear fuel and other as-

pects of the back end of the nuclear fuel cycle. The administration, armed with the final report from the Commission, is committed to working with Congress, States, and local governments to develop an effective strategy to meet the Government's obligation to dispose of our Nation's used nuclear material.

Question. What impact has the proposed closure of Yucca Mountain had on the clean-up plans, as far as the existing tripartite agreements and their associated milestones, for high level waste at Hanford, Idaho National Laboratory, and Savannah River?

Answer. The administration's decision not to proceed with the Yucca Mountain repository does not affect the Office of Environmental Management's (EM) plans to retrieve, treat, and store high-level wastes stored in tanks or to treat and store spent nuclear fuel. EM is focused on addressing environmental and health risks by placing high-level waste and spent nuclear fuel in safe and stable configurations. We intend to continue our tank waste projects as planned and in accordance with our compliance agreements as reflected in the fiscal year 2011 budget request.

Question. How will the administration pay for the awards such as the one recently announced for Energy Northwest?

Answer. All funding for settlements and damages awarded utilities in the ongoing litigation between the Government and the utilities for the Department's delay in accepting spent nuclear fuel from utilities by 1998 under the contracts is provided by the Judgment Fund in the U.S. Treasury.

Question. Regardless of what path we pursue in the future, some type of geologic repository will be needed for radioactive material stored at Hanford. The extensive scientific record that has been developed for Yucca Mountain would be extremely useful toward informing and providing lessons learned for any future repository program. What steps are you taking to ensure that this record will remain available for this purpose?

Answer. The Department is committed to preserving the scientific knowledge created through the Yucca Mountain Project. Records generated by the Office of Civilian Radioactive Waste Management (OCRWM) are managed and archived in accordance with the requirements of the Federal Records Act and related regulations. Paper and electronic media records that have been archived are stored at several National Archives and Records Administration Federal Records Centers (FRC) under FRC regulations, as well as in a DOE-leased facility in Las Vegas. In addition to records on paper and electronic media, images of records are electronically maintained in our Records Information System and DOE's documentary material relevant to the Yucca Mountain licensing proceeding is electronically available on the Licensing Support Network.

Question. Why did the administration move to withdraw the licensing application before NRC with prejudice rather than without prejudice?

Answer. As explained in its Motion to NRC's Atomic Safety and Licensing Board to Withdraw the pending license application with prejudice, the Department seeks this form of dismissal to provide finality in ending the Yucca Mountain project and to enable the Blue Ribbon Commission to focus on alternative methods of meeting the Federal Government's obligation to take high-level waste and spent nuclear fuel.

Question. DOE's loan guarantee program was authorized in 2005. Since that time only one final commitment has been made and five conditional commitments. Applicants have complained about the lack of transparency, the unwieldy application process (which differs depending on the sector), and DOE's complete risk-adversity (risk is impossible to avoid for small companies launching new technologies). DOE has identified multiple goals for the Loan Guarantee program—promoting innovation in the energy sector, helping to develop the capacity to confront the challenges that climate change poses, jumpstarting the construction of new nuclear reactors, ensuring the affordability of energy, and bolstering the competitiveness of the United States in global energy markets.

How is DOE prioritizing these ambitious goals and, as a practical matter, using them to select which projects to support?

Answer. Since issuing its first conditional commitment in March 2009, as of April 1, 2010, the Loan Guarantee Program has closed one loan guarantee and issued conditional commitments for seven additional projects. Projects supported by the Loan Guarantee Program reach conditional commitment and ultimately financial close based on each individual project's ability to fulfill the requirement outlined in the Energy Policy Act of 2005, its Final Rule and the relevant solicitation.

Question. DOE had planned to make a minimum of 21 conditional commitments for projects supported under the Recovery Act by the end of 2009. Instead, the Department made a total of 4 conditional commitments. While the Department has made a few additional conditional commitments since then, DOE is still far short

of its target. What explains the program's difficulty in adhering to its plan? What steps are being taken to address the sources of delay?

Answer. The Loan Guarantee program had substantial achievements in 2009 issuing four conditional loan guarantee commitments, one of which reached financial closing and issuance of the loan guarantee in September. The Program Specific Recovery Plan was based on best estimates at the time, developed very early in the planning process.

Question. What steps are being taken to ensure that the program will issue enough loan guarantees to use the funding authority provided under the Recovery Act before September 30, 2011, when funding authority expires?

Answer. The Loan Guarantee Program has a robust pipeline of projects eligible for both appropriated credit subsidy under the Recovery Act and able to meet the Recovery Act requirement to begin construction by September 30, 2011. In addition, the Loan Guarantee Program has two open solicitations and continues to receive applications from eligible projects.

Question. I understand the application review process differs by the type of technology. Applicants with nuclear power generation projects received a ranking from DOE before submitting the full application fee, while applicants with coal-based and other types of projects did not. Applicants with some types of technologies were allowed to brief DOE and explain their projects after submitting their applications while others were not, potentially denying them the opportunity to clear up misunderstandings about their projects. Why are applicants treated differently in these regards?

Answer. DOE strives to treat all applicants on an equitable basis. DOE understands that communication with applicants is critical as they seek to make business decisions. While the ultimate decision to issue a loan guarantee rests with the Department, DOE endeavors to provide early and thorough feedback to help all applicants make informed decisions regarding their application.

Question. Given how substantial the credit subsidy fees can be for applicants—an average of about 12 percent of the loan guarantee amount, and potentially more for some applicants—when in the application process are you giving applicants estimates? How long have they waited and how much money have they generally spent before receiving these estimates? How precise are these estimates?

Answer. Self-pay applicants can receive an estimated Credit Subsidy Cost, given as a range, early in the loan guarantee process. The Department has developed a process to provide estimates to applicants at key points in the application process. The intent of this process is to provide applicants with estimates of the likely cost so that they can use them for planning purposes. DOE produces early range estimates for self pay applicants under 1703.

The length of the due diligence process depends on the completeness, robustness and simplicity of the project. During this period, companies pay all associated legal and contractor fees, which are comparable to costs assumed for equivalent work in the private sector, and vary widely across technology sectors.

Question. About 90 percent of DOE's budget (over \$22 billion annually) is spent on contracts. DOE is the largest contracting agency in the Government after the Department of Defense. In 1990, GAO designated DOE contract administration and project management as "high risk" because of DOE's record of inadequate management and oversight of contractors, and failures to hold contractors accountable. The National Nuclear Security Administration and Environmental Management program, which account for the majority of DOE's contract budget, continue to experience significant problems.

DOE over the past several years has issued new guidance on performance-based contracting, including how to develop performance measures and incentives to motivate contractors to achieve results. What additional actions can the department take to hold its contractors accountable for meeting cost, schedule, and technical performance targets on projects?

Answer. In addition to performance measures set forth in individual contracts, the Department has undertaken a Root Cause Analysis (RCA) and is implementing fundamental systemic reforms that are being implemented under its Corrective Action Plan (CAP) to improve contract and project management. In addition to the long term improvement in the ability of the Department to meet its commitments on projects and contracts that are expected as a result of the RCA/CAP implementation, the Department is beginning to realize benefits as measured by the percentage of the total project cost (established at Critical Decision-2) that meet the performance metrics for capital asset projects and environmental cleanup projects. For capital asset line item projects, the percentage of projects that are within 110 percent of the Critical Decision-2 Total Project Cost has improved from the baseline level in 2007 of 70 percent to the current projected level of 100 percent. A similar trend

is noted for Environmental Management cleanup projects. For those projects baselined after the 2007 CAP, the projected percentage within 110 percent of the Critical Decision-2 Total Project Cost is 100 percent. While there are continuing challenges on the older projects, those that were baselined after 2007 exhibit greater schedule and cost discipline and are testimony to the continued improvements in major acquisition management within the Department. Specific activities undertaken as part of the RCA/CAP that will promote greater contractor accountability include:

- Improved project front-end planning and requirements definition by the Government will permit large projects to be segmented into smaller, better defined requirements that will support a shift to awarding more firm-fixed-price contracts. This reflects a shift of cost and performance risk to the contractor and is in alignment with President Obama's March 4, 2009, memo on Government Contracting.
- A new algorithm will be used by Federal project directors to analyze functional staffing requirements to ensure that major projects have adequate staffs to perform contract and project oversight.
- Additional training of Federal contract and project management workforce will ensure that the Government has the skill sets to perform the necessary project and contract oversight function.
- Better integration of the Government contract and project management functions in the acquisition planning process will ensure that contractor accountability is built into the contract terms and that conditions and enforcement mechanisms are in place.
- A new Project Assessment and Reporting System (PARS-II) will upload contractor schedule, cost, and performance data from the contractors systems into the Government system to provide consistent, transparent, and reliable data to all levels of DOE management.
- Expanded use of project peer reviews modeled on those in the Office of Science, which has successfully and consistently delivered projects on budget and schedule, is expected to improve overall project execution.
- Rigorous change control processes are in place and will mitigate cost growth on contracts and projects.
- Knowledge management will be improved by piloting a Project Management lessons learned program (ProjNet) and the DOE Corporate Lessons Learned system to collect and disseminate information and knowledge from past projects.

Question. Please describe how you systematically reward best performers, and use disincentives for poor performers?

Answer. DOE uses a variety of mechanisms to reward high quality performance and to hold contractors accountable for poor performance. Specific tools used are: effective use of past performance information; targeting award and other incentive fees to areas of concern; not using base fee on cost-plus-award-fee contracts; and paying no fee if contractors do not meet minimum levels of safety and security.

DOE recognizes contractors that deliver quality service by giving them past performance credit for good performance when making selections for future contracts. Past performance is a meaningful source selection factor in the award of negotiated acquisitions. DOE ensures its past performance information, which is reported electronically through its Contractor Performance Assessment Reporting System to the Past Performance Information Retrieval System, is accurate by its systems of internal procedures and control. These controls include DOE's Procurement Management Review, Balanced Scorecard Self Assessment, and Data Quality Review programs.

DOE considers a cost-plus-award-fee contract the appropriate contract type for DOE management and operating and other facility contracts. DOE does not generally use base fee on these contracts. All at-risk fee is dependent upon performance. DOE includes a conditional payment of fee clause in its management and operating and other facility contracts that reduces or entirely eliminates any fee the contractor would otherwise earn if the contractor has not met the safety and security requirements of the Department. This recoupment provision is an exceptionally strong incentive for contractors to perform critical functions well.

Question. How do you apply "lessons learned" across all contracts throughout all programs?

Answer. DOE has a robust program of continual guidance dissemination throughout the Department. Guidance is released through Policy Flashes, Acquisition Letters, new and updated Acquisition Guide Chapters, and Memorandums from the Senior Procurement Executive. This program includes sharing of lessons learned from recent procurements, from internal reviews, and from reviews conducted by outside groups such as the Department's Inspector General and the Government Accountability Office. Internal reviews include the Procurement Management Review

that documents finding and best practices within a knowledge management tool—a Web site that supports sharing of the lessons learned and best practices in the areas of acquisition, financial assistance, contractor pension/benefit management and property management.

In fiscal year 2008, the Department implemented a robust, comprehensive Procurement Management Review (PMR) Program. This program determines how effectively and efficiently the field area and site contracting organizations support their respective site mission requirements. It emphasizes the evaluation and compliance of critical contracting processes that are key. In addition, the program identifies noteworthy practices for export throughout the Department as well as deficiencies and obstacles to avoid. This knowledge management component of the program is facilitated by a headquarters core review team augmented by experienced field contracting personnel. Integration of experienced field staff with senior-level headquarters staff facilitates the transfusion of knowledge and experience among and between DOE's contracting activities via the sharing of lessons learned and best practices. The team incorporates peer reviews from other DOE procurement/financial assistance locations and helps spread practices throughout the Department.

Additionally, DOE created a position titled "Source Evaluation Board (SEB) Secretariat and Knowledge Manager (SKM)" specifically tasked with ensuring that lessons learned are recorded and shared across the Department. The SKM developed a "SEB lessons learned" template and all SEBs whose acquisition value exceeds \$25 million must document their lessons learned, which will be shared with all DOE procurement personnel. The lessons learned will be analyzed for trends, and areas where additional guidance, and/or policy may be needed. The SKM is also responsible for source selection training for SEBs, and the establishment of SEB reporting requirements and tracking the status of SEB activities against established milestones. A monthly SEB reporting requirement has been put in place, and both lessons learned and trends will be identified and shared with DOE procurement personnel.

Question. Last year we were told the Department faced a major crisis with funding for its contractor pension programs. I understand you have changed the way you are budgeting for pensions and the problem is less of a crisis.

Could you please explain in detail the changes in budgeting you have or intended to implement?

Answer. Due to the rising costs for the reimbursement of DOE Management and Operating (M&O) and major site management contractor employee defined benefit (DB) pension plan contributions, the Department has improved and strengthened its management and oversight of DB pension plans.

Specifically, in January the Department eliminated the requirement that every contractor employee DB pension plan be funded—and thus annual contributions budgeted—at the 80 percent level. The new reimbursement action requires the Department to reimburse contractors for the amounts required to fund their DB pension plans at a level equivalent to the minimum amount required by the Employment Retirement Income Security Act (ERISA) as amended by the Pension Protection Act (PPA), or higher if necessary for a contractor DB pension plan to have a funded status of at least 60 percent. Exceptions to the new reimbursement action will be reviewed on a case-by-case basis. Additionally, the Department has institutionalized an annual pension management plan review process with the specific objective of improving cost predictability and containing current and future costs. Each contractor is required to provide annual DB pension plan data and information to DOE for review in January of each year, so that DOE and the contractor can engage in fact-finding and discussions concerning the contractor's management approach and plans for its employee pension plans prior to the contractor's actuarial certification of the DB plan as required under the PPA. In an effort to improve planning and budgeting accuracy, contractor representatives also will discuss with DOE personnel, among other things, assumption elections, usage of credit balances, investment performance, and future year contribution estimates. Although actual contributions required by a contractor to fund a DB pension plan cannot be known prior to the start of the fiscal year, the Department has acquired modeling capabilities to estimate funding requirements and will work closely with the contractors to include accurate contribution estimates in future budget requests.

Question. What is the fiscal year 2010 pension liability and how does that compare to what the Department budgeted for that fiscal year? How will that change in fiscal year 2011?

Answer. Based on the information provided by the contractors during the annual pension management plan review, the Department anticipates fiscal year 2010 contributions by contractors to their DB pension plans of approximately \$650 million. Although contractor contributions are an indirect cost allocated in accordance with

the Cost Accounting Standards and are not broken out as line items in the fiscal year 2010 budget request, these contributions are covered by the fiscal year 2010 budget.

For fiscal year 2011, the Department currently estimates these contributions will be approximately \$1 billion, which is reflected in its fiscal year 2011 budget request. Actual contributions may change, as they are highly sensitive to underlying data, methods, assumptions, and capital market performance.

Question. What are the impacts of higher pension liability on the amount of work performed by the contractors?

Answer. The Department anticipates that contractor DB pension costs will continue to rise for the foreseeable future, some of which can be attributed to the current reimbursement action. The Department's recent efforts to improve and strengthen its management and oversight of the contractor's management of its DB pension plan costs were motivated by the need for greater predictability and better control over costs, as well as to ensure that contractor DB pension costs do not impact performance of mission work. As a result of the Department's revised DB pension cost reimbursement action, as well as improved market factors and improved transparency, the Department anticipates that additional resources may in fact become available in fiscal year 2010 and fiscal year 2011 for performance of mission activities. However, as the additional resources that may become available to DOE in the short-term in fiscal year 2010 and fiscal year 2011 is due to the current reimbursement action, in the long term, it may come at the expense of the need for additional reimbursements in the future.

That said, the Department anticipates facing rising contractor DB pension costs (due in part to the change in reimbursement action, and to the ever-increasing overall contractor employee compensation and benefits structure which includes pension benefits) for the foreseeable future and will continue to work closely with the contractor community to minimize any impact on mission work.

Question. How does the Department propose to resolve this situation?

Answer. The Department will continue to use the annual pension plan review process to assess this situation and will continue to engage with the contractors to mitigate any impacts, while continuing to meet contractual and statutory obligations to reimburse the costs of the contractor's DB pension plan.

Question. As one of the largest research agencies in the Federal Government, DOE spends billions of dollars each year on publicly funded research.

How is DOE using its labs to develop technologies to address the complex task of cleaning up decades of accumulated nuclear and hazardous wastes? Please provide some examples.

Answer. The Office of Environmental Management (EM) directs the national laboratories, particularly those with close ties to EM sites such as the Savannah River National Laboratory (SRNL), the Pacific Northwest National Laboratory (PNNL), and the Oak Ridge National Laboratory (ORNL) to develop environmental cleanup technologies. The focus of our technology needs is primarily on Tank Waste. The reason EM is tasking the labs to do this is because we need transformational technologies to vastly reduce the life cycle cost and schedule of the tank waste system. Examples of technologies under development at the national laboratories include advanced glass formulations for increased radioactive waste loadings, an advanced cold crucible induction melter, and advanced chemical cleaning technologies for radioactive waste tanks.

Question. To what extent are DOE sites using similar cleanup technologies, when possible, to help reduce development costs and increase cleanup efficiency?

Answer. The Technology Development and Deployment program seeks, wherever possible, to develop technologies that can be used at multiple sites. Current projects with multiple site application include:

- At-Tank/Near Tank Processing.*—Use of at- or near-tank equipment will allow solids and radionuclides to be removed, accelerating processing rates and allowing early operations at both Hanford and Savannah River Site (SRS).
- Glass Optimization.*—Improved glass formulations applicable to the Hanford WTP and the SRS DWPF will allow a higher waste loading and reduced life cycle costs.
- Alternative Treatment/Disposal Processes.*—A Fluidized Bed Steam Reforming (FBSR) technology is being developed that could be applied to waste streams at both Hanford and SRS.
- Mixing/Blending Systems Optimization.*—The use of lab and pilot scale data to verify and calibrate Computational Fluid Dynamic (CFD) or other types of numerical models will be used to improve the modeling of Hanford and SRS tank waste mixing and processing.

—*Integrated Systems Analysis.*—To analyze alternatives to current radioactive tank waste disposal technologies, EM has developed a limited life-cycle model applicable to both the Hanford and SRS tank wastes. The next steps will be for site-specific process characteristics from current systems plans to be loaded into the model and validation runs to be completed.

Question. Why are three sites with tank waste—Savannah River, Hanford, and Idaho Falls—all using different technologies to treat their tank waste?

Answer. The three sites do use different technologies due to the composition of the radioactive tank waste. Hanford produced large volumes of about 20 different types of waste. SRS, built a decade after Hanford, produced two main types of waste using the plutonium-uranium extraction (PUREX) process and the H-modified PUREX process.

Another factor contributing to the use of different technologies are the waste tanks themselves. The Hanford and SRS tanks are constructed of carbon steel and cannot contain acid. Therefore the wastes were neutralized with caustic to produce an alkaline waste. The Idaho tanks were constructed with stainless steel and therefore the wastes were not neutralized with caustic. As the Idaho radioactive wastes were acidic, a different disposition approach, calcination, was appropriate.

Question. Aside from the Recovery Act, the Department has unobligated balances in excess of \$1 billion. What is DOE's policy regarding maintaining carryover balances? What is the rationale for such large unobligated balances? To what extent can these balances be used to offset the fiscal year 2011 budget request? Why should the subcommittee not require that all salaries and expenses appropriations be single-year, as they are in most other agencies?

Answer. It is my intention to use departmental resources wisely. A key component of this effort is to use funds as intended by Congress and in as efficient and timely a manner as possible.

Given the importance of minimizing unobligated balances, progress toward fully obligating each account is one of the key metrics evaluated during quarterly execution reviews. There are some instances where it is not prudent to obligate fully and therefore, establishing a blanket goal across the Department is unwise. Some examples of appropriate delays in obligations include: late passage of or anticipated delay in enacting annual appropriations; complex or specialized efforts for which it is difficult to find contractors; and programs that accumulate balances over several years before obligating—the Clean Coal Power Initiative, for example.

When there are excess balances the Department's Chief Financial Officer and the programs work to address any impediments to carrying out approved activities. Where impediments to carrying out activities are identified, mitigation efforts are put in place. Where these are unsuccessful, or where the funds are no longer needed, unobligated balances may be identified as sources to pay for new activities. When this is possible, we propose this to Congress.

In general, the Department has a good record of obligating funds. Over the last 5 years, the Department has obligated an average of 95 percent of available funding by the end of each year. The small amount of unobligated balances is useful to help manage activities during Continuing Resolutions. I am confident the Department does not abuse the no-year availability of this funding and urge you to leave it no-year money.

Question. With the NP2010 ending this year, you have reorganized the Nuclear Energy budget.

How would you characterize the changes you have made in the Office of Nuclear Energy in terms of projects that focus on applied science versus those that focus on basic science?

Answer. The research budget of the Office of Nuclear Energy (NE) is directed toward attaining breakthroughs that would specifically support the advancement of nuclear power technologies, which we generally consider applied research. However, NE is also engaged with other offices, such as the Office of Science, in coordinating research that is at a more basic level. For example, NE is funding materials research, where the results could be used by the nuclear industry for future fuel cycle facilities, but also potentially by multiple industries.

Question. What would you highlight in the Office of Nuclear Energy as your most important programs? How important is sustaining the current fleet of reactors, potentially for operation beyond 60 years, in terms of reducing greenhouse gas emissions?

Answer. NE has established a broad research portfolio to support nuclear power in multiple ways. All of the programs are important to nuclear energy's future, though certainly different programs are more important with respect to specific objectives: extending the lifetime of the current fleet, enabling new builds, developing a sustainable fuel cycle, etc. Safely continuing operation of the current fleet of reac-

tors, potentially beyond 60 years, helps avoid greenhouse gas emissions and as such would have an effect on the Nation's carbon emissions profile.

Question. What is DOE doing to research the potential to keep these plants on the grid? Are you aware of any Energy Information Agency forecasting that include the current 104 reactors on grid through 2040?

Answer. The Light Water Reactor Sustainability program is conducting research to investigate the possibility of extending the operating lifetime of current plants beyond 60 years. The program plans to look at a variety of issues, including materials aging and degradation, safety margin characterization, efficiency improvements, instrumentation and controls, and advanced fuels for light water reactors. The long-term EIA projections go out to 2035, so we are not aware of any forecasting that includes the current 104 reactors remaining on grid through 2040.

Question. For the first time, DOE is proposing to work cooperatively with industry on small modular reactors. These are reactors that can be built in U.S. factories and shipped to plant sites. Can you explain why the Department is proposing this program at this time?

Answer. DOE has engaged in discussion with small modular reactor (SMR) vendors, utilities, the Nuclear Regulatory Commission (NRC), Department of Defense, and other possible end-users of SMR energy. Through these discussions, we became convinced that there is potential in the small modular reactor concept. We will hold a workshop to gain further information about potential technical needs and industry challenges and from there the administration evaluate potential priorities in the context of the appropriate Federal role to identify the most cost effective, efficient, and appropriate mechanisms to support further development.

Question. The budget increases the Fuel Cycle Research and Development Account by \$65 million. Could you please tell the Committee what activities you are planning for 2011?

Answer. The Fuel Cycle Research and Development program is continuing the shift begun in fiscal year 2010 from a near-term technology development and deployment program to a long-term, results-oriented, science-based R&D program. We intend to expand the scope of the program in two areas in fiscal year 2011, which accounts for the increased funding request: (1) Used Nuclear Fuel Disposition R&D and (2) Modified Open Cycle R&D.

The Used Nuclear Fuel Disposition R&D technical area is being increased from \$9 million to \$45 million to continue and expand R&D related to storage, transportation, and disposal options for used nuclear fuel and high-level waste. Much of the work in these areas was previously within the scope of the Office of Civilian Radioactive Waste Management. In addition, as necessary, these funds will also be used to respond to technical inquiries from the Blue Ribbon Commission.

The Modified Open Cycle R&D program has been established as a new technical area in the program in fiscal year 2011. It is important to examine the full range of fuel cycle strategies in order to provide future decisionmakers with adequate information to make decisions on how best to manage used nuclear fuel. The modified open fuel cycle has not been studied as thoroughly as the once-through fuel cycle and full recycle fuel cycle options. The modified open fuel cycle is a strategy that is "modified" in that some limited separations and fuel processing technologies are applied to the used light water reactor fuel to create fuels that enable the extraction of potentially much more energy from the same mass of material and accomplish waste management and nonproliferation goals. There are many technical challenges and unanswered questions associated with this option. The program will investigate priority issues related to fuel forms, reactors, and fuel/waste management approaches.

Question. Could you please describe how you fund, monitor, and enforce compliance issues within the Energy Star Program?

Answer. For fiscal year 2010, EERE is using American Reinvestment and Recovery Act (Recovery Act) funds for verification testing of ENERGY STAR® products in support of the Recovery Act-funded Appliance Rebate Program (SEEARP). If models fail to meet ENERGY STAR® program requirements, States are being notified and, at their discretion, can remove those models from their rebate eligibility lists. Also, if a model does not meet requirements, EERE notifies the Environmental Protection Agency who will take ENERGY STAR® enforcement action with the manufacturer and, in most cases, would disqualify the product from the program's qualified product list. In the event testing shows the product also does not meet minimum energy efficiency standards, the Department of Energy will begin enforcement actions to insure the product is not sold illegally in the market. The 2009 MOU was written with the intent EPA will handle matters pertaining to ENERGY STAR® enforcement while DOE would continue to handle any minimum standards violations.

In fiscal year 2011, the Department will expand the categories of ENERGY STAR® products to be tested, along with supporting EPA's managed market-based verification program. DOE continues to request appropriated funds for work supported by DOE.

Question. How many staff does the Department employ for ENERGY STAR® compliance, monitoring, and enforcement, and are there any specific plans to increase this capacity in fiscal year 2011?

Answer. In fiscal year 2010, the Department is using 2.0 Full Time Equivalent (FTE) for ENERGY STAR® verification testing, compliance and monitoring, and program transition functions. Based on DOE verification testing, EPA is handling the enforcement portion of the program. In the event testing shows the product also does not meet minimum energy efficiency standards, the Department of Energy will begin enforcement actions to insure the product is not sold illegally in the market. The 2009 MOU was written with the intent EPA will handle matters pertaining to ENERGY STAR® enforcement while DOE would continue to handle any minimum standards violations. In addition, 1.0 FTE has been used to support the State Energy Efficiency Appliance Rebate Program. In fiscal year 2011, the Department anticipates increasing staff support to 3.0 FTE in order to increase its testing, compliance and monitoring functions, to begin developing/revising test procedures for the program and to provide technical analyses for EPA's program requirements' development and revision. The State rebate program will be winding down and only require 0.25 FTE in fiscal year 2011.

Question. DOE staff has briefed congressional staff on transferring the promotion of several ENERGY STAR® products to the EPA, such as windows, refrigerators, dishwashers and compact fluorescent lights, within the fiscal year 2011 budget request. However, the budget still references these products as part of the DOE.

Is it the administration's intent to transfer the promotion of ENERGY STAR® labels for these appliances from the Energy Department to the EPA? Please describe the funding, rationale, and implementation schedule anticipated for this transfer, if it is undertaken.

Could you please describe how the DOE intends to release more than 20 final appliance rules by June 30, 2011 and whether the amount of funding requested in the budget is adequate to ensure that these final rules are issued by the deadline.

Could you please break-down funding for the various components of the ENERGY STAR® Program for fiscal year 2011?

Answer. In order to improve the efficiency of the ENERGY STAR® Program based on the capabilities of the two agencies, the agencies agreed to new roles managing this program. The Environmental Protection Agency will now take on one set of responsibilities across all ENERGY STAR® product categories. This includes both program requirements establishment, or revision, and the promotion of these products. DOE will take on the roles of testing procedure development and product testing where appropriate. This transition is currently taking place and will be completed during fiscal year 2010. In fiscal year 2011, the DOE proposes to fund the development or revision of test procedures for ENERGY STAR®, testing and verification of products, and providing technical support to EPA as described in the September 30, 2009 Memorandum of Understanding signed by the two agencies. For fiscal year 2011, the Department requested \$10 million for ENERGY STAR® Program activities of which \$5 million will be focused on test procedure development and revision, \$4 million for testing and verification, and \$1 million for analyses and technical support to EPA.

DOE established detailed schedules for development and issuance of all rulemakings governed by the Consent Decree or statutory deadlines, and is putting in place the staff, internal processes and other resources necessary to ensure that these deadlines are achieved. For fiscal year 2010, the Department requested and received \$35 million to support implementation of the appliance standards programs. For fiscal year 2011, the Department requests \$40 million for these efforts. This funding is adequate to enable DOE to meet the established deadlines and to undertake new efforts to improve compliance and enforcement. part of that money will go to the enforcement of minimum appliance standards that DOE promulgates. While we will report and share data with ENERGY STAR®, the Appliance Standards program is not responsible for enforcing ENERGY STAR® efficiency levels.

Question. The Next Generation Lighting Initiative will provide significant energy savings through more efficient lighting. Given the DOE's management in the development and understanding of this new technology, could you please describe how DOE will oversee this initiative, as well as other activities related to the initiative?

Answer. The Department of Energy (DOE) has taken a comprehensive approach to overseeing the Next Generation Lighting Initiative, a part of the Energy Policy Act of 2005. This approach covers a balance of engineering and science in R&D, and

market-based programs. Elements include Core Technology (applied research), Product Development, Manufacturing R&D, Commercialization Support, and SSL Partnership (with the Next Generation Lighting Industry Alliance). Over 70 active R&D projects address the key science and engineering challenges. Workshops are held each year to keep the program focused on the priority R&D challenges. All R&D projects are competitively-awarded and cost-shared. A collection of Commercialization Support programs, such as CALiPER, GATEWAY and Standards development, provide information and direction to market players, and link back into the R&D program for further improvements. The commercialization support programs have over 150 partners involved. The program has produced performance achievements in efficacy each year, moving the market/technology upward in efficiency.

QUESTIONS SUBMITTED BY SENATOR THAD COCHRAN

Question. Mr. Secretary, I have been waiting for a year for a report on the Strategic Petroleum Reserve, specifically on the Mississippi site for expansion, and I have yet to receive any word from the Department. Why? I brought this up at last year's hearing because funding for the project remained contingent on the issuance of the report. What is the status?

Answer. The Omnibus Appropriations Act, 2009 (Public Law 111-8), enacted March 11, 2009, requires "... That none of the funds provided for the new site expansion activities may be obligated or expended for authorized activities until the Secretary of Energy has submitted a Report to the Congress on the effects of expansion of the Reserve on the domestic petroleum market." DOE has prepared the report and it is under review.

Question. What is the status of DOE-funded nuclear energy workforce training and education programs? Are we going to have enough people trained to work at nuclear plants and at DOE facilities in the next 10 years?

Answer. In 2011 the Department will implement RE-ENERGYSE (Regaining our Energy Science and Engineering Edge), which will enable education and inspire students to pursue careers in science, engineering, and entrepreneurship related to clean energy. This new effort will provide important support to bolster nuclear engineering and science programs at U.S. universities and will be an effective and appropriate means of providing educational support.

The existing program within NE that provides scholarships and fellowships will be terminated at the end of fiscal year 2010. This existing program—the Integrated University Program (IUP) will provide \$5 million to fund 88 scholarships and 30 fellowships to be awarded in the summer of 2010. In fiscal year 2011, NE will fund these activities at the same level through the RE-ENERGYSE initiative.

Question. I am concerned about the utility ratepayers of Mississippi who have contributed to the nuclear waste fund. What is the justification for continuing to collect these funds from Mississippi when DOE has now decided to terminate the national repository program? Mr. Secretary, I believe it would make better public policy to suspend collections until Congress determines future funding needs and funding methods when it enacts a new program based on the Blue Ribbon Commission's recommendations. I would like to work with your staff on this issue.

Answer. The administration is fully committed to meeting the responsibilities for the safe storage and management of spent nuclear fuel and nuclear waste. The fees collected from the nuclear industry are legally mandated and reviewed every year and will pay the cost of the long-term disposition of the materials. The Blue Ribbon Commission has been charged with making recommendations on these issues, including how the fees should be handled moving forward.

Question. On the subject of terminating the national repository program, Mr. Secretary, what steps are you taking to appropriately retain the data gained from the billions of dollars invested in research on the repository?

Answer. The Department is committed to preserving the scientific knowledge developed through the Yucca Mountain project. Records generated by the OCRWM program in the course of activities at Yucca Mountain are managed and archived in accordance with the requirements of the Federal Records Act and related regulations. Paper and electronic media records that have been archived are stored at several National Archives and Records Administration Federal Records Centers (FRC) under FRC regulations, as well as in a DOE-leased facility in Las Vegas. In addition to records on paper and electronic media, images of records are electronically maintained in our Records Information System and the DOE's documentary material is electronically available to the public on the Licensing Support Network.

Question. Mr. Secretary, in speaking with my colleagues today, you mentioned salt domes as possible nuclear waste storage sites. Could you please tell me which

salt domes the Department is looking at for this purpose, and could you give more information about this idea?

Answer. The Department is not currently studying any specific site as a replacement for Yucca Mountain, nor is DOE considering any specific salt dome as a possible nuclear waste storage site.

Question. I understand the DOE is proposing \$3 million for international nuclear energy cooperation. Can you please explain this program to the subcommittee?

Answer. The INEC budget request of \$3 million will be used to provide advice and support to Office of Nuclear Energy (NE) programs in implementing international cooperative research and development (R&D) activities. The R&D is the responsibility of other NE programs, not INEC. INEC would also work with other NE programs, other Department offices, and other agencies on implementing new agreements having civilian nuclear energy aspects. Some of the funding will focus on bilateral and multilateral agreements and implementing arrangements to carry out cooperative technical R&D-based activities with countries including Argentina, Brazil, China, India, Kazakhstan, and the Republic of South Africa and possibly other countries as U.S. international policy is developed. Typically, before international collaborative work is initiated, DOE works closely with other domestic agencies, such as the Department of State, to convene experts-level meetings with foreign counterparts to discuss the policy, technical and legal parameters of cooperation. Once these are established, assessments of capabilities and technology requirements are typically conducted to identify the most mutually beneficial areas of cooperation. It is in these initial steps of laying the foundation for cooperation that much of the INEC budget request would be applied.

NE collaborates on a bilateral and multilateral basis with a wide array of countries including Japan, Russia, the Republic of Korea, France, Ukraine, and others, but the implementing arrangements for cooperation with these countries are already in place. In such cases, policy and technical support from NE's Office of International Nuclear Energy Policy is less intensive.

Examples of potential areas of international civilian nuclear energy collaboration that NE programs would engage in include, but are not limited to: research, development, testing, and evaluation of advanced nuclear reactor systems; advanced nuclear fuel and material irradiation and use of experimental facilities; technical expert exchange programs to share best practices at civilian nuclear power plants; small and medium-sized reactor development; reactor life sustainability; probabilistic safety assessments and risk analyses for operating reactors; improvements in reactor fuel burn-up efficiencies; and, together with other global partners, the exploration of ways to enhance the international framework for civil nuclear cooperation so that countries can access nuclear power for peaceful purposes while minimizing the risks of proliferation.

Question. Congress appropriated funds in the Recovery Act specifically for pilot and demonstration scale biofuels projects. In my home State of Mississippi, we have a company that is ready to start building a biorefinery capable of producing close to 18 million gallons of biofuel per year. This project is shovel-ready and will create green jobs in our State. It is our understanding that several of these projects are currently being evaluated by the Loan Guarantee Program. Can you give us a sense of what the timing is on issuing loan guarantees for biofuels projects?

Answer. The Departments' Biomass Program and Loan Programs work in conjunction to support the development of cellulosic ethanol from research and development, demonstration and piloting, and finally, full commercial scale-up. In 2009, the Department's Biomass Program committed over \$610 million in Recovery Act funds to increase investments in integrated biorefineries at the pilot and demonstration scale as well as for biofuels infrastructure activities. This Recovery Act funding is in addition to the over half of a billion dollars of DOE investments in integrated biorefinery projects from fiscal years 2007 through 2010. The purpose of DOE's investments in pilot, demonstration, and small commercial scale biorefineries is to generate techno-economic data from their operations in order to validate full commercial-scale readiness. Once a technology has been proven in the pilot and demonstration phase, it may be eligible for a DOE loan guarantee to support the project's full commercial scale up. Under the Recovery Act funding for the Loan Guarantee Program, all biofuel projects must represent advanced technologies.

The Loan Guarantee Program is working closely with the Renewable Fuels Association to facilitate dialogue with biofuels companies. As a result of this collaboration, on April 7, 2010, the Loan Guarantee Program held a roundtable discussion with members of the biomass community to discuss issues that the industry faces in obtaining loan guarantees.

Question. President Obama reiterated his support for biofuel development in May 2009 and again on February 3 of this year. Are there any issues that are holding up approval of these biofuels projects? Are these projects a priority for DOE?

Answer. Bioproduct projects present some unique challenges. Many are capital intensive, provide a commodity product, and have no off-take agreements. The Loan Guarantee Program is working closely with the Renewable Fuels Association to facilitate dialogue with the biofuels companies. As a result of this collaboration, on April 7, 2010, the Loan Guarantee Program held a roundtable discussion with members of the biomass community to discuss issues that the industry faces in obtaining loan guarantees.

Question. In the 2007 energy bill we set a renewable fuels standard that requires 36 billion gallons of renewable fuel by 2022. How does DOE envision achieving this goal?

Answer. Achieving the Renewable Fuel Standard (RFS) requires the creation of a new industry that will produce a high volume of liquid transportation fuels that are cost competitive with petroleum fuels. Several factors have led to unanticipated reductions in the near-term pace of growth of the cellulosic biofuels industry, including the economic recession, oil price drops, and the reduction of credit available to investors who wish to invest in these technologies.

The Department of Energy (DOE) believes the United States must accelerate renewable fuels production to meet the RFS requirement of 36 billion gallons. The key to such a large-scale transition and meeting the RFS targets is to make cellulosic biofuels and other advanced biofuels cost competitive with corn-based ethanol and gasoline. That is why the DOE is performing fundamental research on next-generation bioenergy crops to provide the transformational breakthroughs that can contribute toward more efficient cellulosic ethanol production and development of other advanced biofuels. Additionally, DOE has a robust applied R&D and deployment program focused on driving down the costs of key components of producing advanced biofuels through both biochemical and thermochemical pathways. DOE also works to establish a sufficient and sustainable supply of bioenergy feedstocks and cost-effective systems for harvest and transport of feedstocks to biorefineries. Moreover, DOE is cost sharing a total of 27 biorefinery projects with industrial partners at the pilot, demonstration, and commercial scales, all of which focus on cellulosic or other non-food feedstocks to produce advanced biofuels in support of the RFS. DOE has developed public-private partnerships to reduce the risk of deploying first-of-a-kind cellulosic biorefineries to produce biofuels. The Energy Information Agency's Annual Energy Outlook 2010's reference case scenario projects that biofuels will account for most of the projected growth in liquid fuels consumption, reaching 26 billion gallons in 2022.¹

QUESTIONS SUBMITTED BY SENATOR GEORGE V. VOINOVICH

Question. The DOE Office of Nuclear Energy budget lists a new program for Reactor Concepts R&D in the amount of \$195 million. The Reactor Concepts R&D request carries on activities for a variety of previously appropriated activities, and includes a new program for Small Modular Reactors (SMRs) in the amount of \$38.9 million. Given recent strong commercial interest in the new reactor technologies funded by Reactor Concepts R&D, there is a need for adequate, dedicated funding for cost-sharing of the development of Small Modular Reactors by public/private partnerships to reduce financial uncertainty. The cost-sharing amount needed to support two small light-water-reactor designs has been estimated to be not less than \$35 million. This means that additional funds of about \$20 million are needed to support research for the SMRs. How is DOE ensuring that adequate cost-sharing funds and research funds are available for small light water modular reactors, and how is DOE ensuring that this cost-sharing information is publically known and available so that the private sector will have certainty in investing?

Answer. DOE has engaged in discussion with small modular reactor (SMR) vendors, utilities, the Nuclear Regulatory Commission (NRC), Department of Defense, and other possible end-users of SMR energy. Through these discussions, we became convinced that there is potential in the small modular reactor concept and have requested an appropriate amount of funding for SMR activities in the fiscal year 2011 budget. DOE will hold a workshop on SMRs in June 2010 to obtain information from vendors and suppliers, potential utility customers, national laboratories, universities, NRC, and interested stakeholders on priorities, activities and projects that

¹“EIA’s Long-Term Biofuels Outlook” EIA Presentation, 2010 Energy Conference, April 6, 2010 <http://www.eia.doe.gov/conference/2010/session2/gross.pdf>.

will inform our strategy. As noted in the budget, the administration will evaluate potential priorities in the context of the appropriate Federal role to identify the most cost-effective, efficient, and appropriate mechanisms to support further development. Any cost-sharing within the SMR program will be based on a competitive award process. We believe that both the DOE cost-share award process and NRC licensing process will help ensure that information gained through this program is made available to others to the greatest degree possible.

Question. The Clean Energy Park concept builds upon a DOE initiative to re-industrialize and transform former weapons complex sites into clean energy production centers. Through this approach, the local communities, States and regions that supported our Nation's defense mission for so long will benefit from the sustainable economic development opportunities of such large-scale commercial projects. As you are aware the Southern Ohio Clean Energy Park Alliance (SOCEPA) has held several meetings with officials in the Department over the past year regarding their shared interest with the Department in creating a Clean Energy Park initiative. This project would provide a unique opportunity for the Department to support many of the missions of its own internal offices in a cross-cutting nature, including carbon footprint reduction of the Nation's electric generation, asset reutilization and re-industrialization of former weapons complex sites, and support for deployment of electric generation that relies on low carbon and zero carbon technologies.

While the Department has voiced support for the concept, it is not clear how DOE is progressing in developing it. Examples of program developments could be formation of a program office within DOE including funding, identification and policies for coordination of issues across departments, and policies for organizations to use in developing sites and local support.

What is the Department doing to develop this concept?

Answer. In early 2009, representatives from the Office of Environmental Management (EM) discussed EM's "footprint reduction" initiatives for several Department of Energy (DOE) sites and the potential future use of land with regional stakeholders and local communities. However, the administration is focusing Environmental Management activities on its core cleanup mission, which continue to experience project management, technical, and regulatory challenges. Completing remediation of these sites on cost and schedule is the most effective way for the Department to support local officials, businesses, and others in these communities with their economic development plans.

Question. Is there any legislation that is needed?

Answer. The administration is not proposing or requesting any legislation.

Question. I am concerned that the regulatory and technical infrastructure, as well as the industrial base in manufacturing and fabrication technologies may not be ready to support the development of new and innovative reactors. This includes cross-cutting technologies for identification, development, demonstration and qualification of advanced manufacturing and construction techniques, modern codes and standards, supply chain development, and qualification, and training of people. How is DOE ensuring that adequate resources have been set aside to ensure that this infrastructure continues to develop and will be in place in a timely manner?

Answer. In general the private sector is expected to respond and accommodate the manufacturing and construction needs as industry decides to move forward and build new reactors. The Department's recent loan guarantee announcement has sent a strong signal to the private sector that nuclear needs to be part of our energy mix, and we expect the private sector to continue to make adjustments in order to build new reactors. We are also working, through programs such as RE-ENERGYSE, to train the next generation of nuclear engineers and scientists. And, the Department will participate in codes and standards activities as appropriate.

Question. I would like to commend you for DOE's recent announcement to provide a \$45 million cost share for further development and demonstration of the American Centrifuge Plant (ACP) in Piketon, Ohio. Your decision is a strong commitment by the Department to this important technology.

However, I am concerned about your response to Senator Bennett's question during the Energy and Water hearing regarding when DOE will close on the loan guarantee application by Areva for their proposed enrichment facility. The premise in your response "We are closing on it as quickly as possible" implies that Areva will receive a loan guarantee without United States Enrichment Corporation (USEC) having the opportunity to update their previous application for the loan guarantee.

I urge you to ensure that the USEC technology is not precluded in the consideration for a loan guarantee. As you know, USEC has been working to address the technical and financial concerns that were raised last summer by the DOE loan guarantee program. USEC has indicated that they have made significant technical progress in demonstrating the reliability and the high quality manufacturability of

the centrifuge machines to support certainty in the cost and performance needed for a commercial plant. DOE's commitment to providing \$45 million in demonstration and development funding has enhanced USEC's ability to demonstrate the technical requirements needed for the loan guarantee program. Financially, USEC has disclosed that they are exploring strategic alternatives to raise additional capital for the American Centrifuge project, and that assurances for a clear path forward for a loan guarantee would be important to their ability to obtain third-party financing.

From a timing standpoint, USEC appears to be nearing the final stages of meeting their obligations for a loan guarantee. The ACP is "shovel ready" and has the potential to quickly create about 8,000 good American jobs in numerous States. The Areva project is not as mature and will take several years before we would see this kind of job growth, assuming the project is successful. As we have discussed before, funding of this centrifuge technology is essential to U.S. job growth and the future of clean, abundant energy in the United States.

If DOE is, in fact, nearing a decision on the Areva technology, I urge you as strongly as possible to also provide a clear path forward for ensuring loan guarantee funding is also available for the American Centrifuge Plant. A failure to do so, I fear, would lead to further job loss and ultimately jeopardizing the success of this project so crucial to our energy and national security needs. I request that you support USEC's commitment to fulfilling the requirements for a loan guarantee and do not shut the door on this vital project. Specifically, will DOE have additional loan guarantee funds available for both the Areva and the USEC ACP, and what legislative authority and appropriations does DOE need to support this?

Answer. In response to a June 30, 2008 solicitation for Federal loan guarantees supporting Front End Nuclear Facilities, the Department received two applications for Federal loan guarantees to support two different front-end nuclear facility projects. In total, the two applicants requested DOE to provide loan guarantees in excess of the \$2 billion available authority.

On March 25, 2010, the Department sent a reprogramming request to the appropriate Congressional Committees notifying them of DOE's intention to use up to \$2 billion of the fiscal year 2007 Authority, made available to the Department under the Revised Continuing Appropriations Resolution, 2007, for front end nuclear fuel facilities. The balance of the fiscal year 2007 Authority will remain available for loan guarantees for eligible project applicants under the 2006 Solicitation for fossil, energy efficiency and renewable energy systems projects that employ innovative technologies.

SUBCOMMITTEE RECESS

Senator TESTER. I wish you all the best, Secretary Chu.

And this subcommittee hearing is recessed.

[Whereupon, at 12 noon, Thursday, March 4, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2011

WEDNESDAY, MARCH 10, 2010

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:15 a.m., in room SD-116, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senators Dorgan, Feinstein, and Bennett.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SECURITY ADMINISTRATION

STATEMENT OF HON. THOMAS P. D'AGOSTINO, ADMINISTRATOR

ACCOMPANIED BY:

ADMIRAL KIRKLAND H. DONALD, DEPUTY ADMINISTRATOR OF NUCLEAR REACTORS

STEVEN BLACK, CHIEF OPERATING OFFICER, OFFICE OF DEFENSE NUCLEAR NONPROLIFERATION

BRIGADIER GENERAL GARRETT HARENCAK, PRINCIPAL ASSISTANT DEPUTY ADMINISTRATOR FOR MILITARY APPLICATIONS

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. I'm going to call the hearing to order.

I was giving a speech just down the hall, and therefore, showed up early, and it was most uncomfortable, because I'm never anywhere early.

So, if it appeared to all of you I didn't know what to do, that's the reason.

Mr. D'Agostino, you appear to be in a good mood this morning, and I assume that's because your budget request, coming from the administration, suggests increased funding. There's always a relationship in the mood, and we're appreciative, very much, of your being here, and we congratulate you on your extension and continued work in these areas. The work of the National Nuclear Security Administration is very, very important.

This year's budget request of \$11.2 billion for NNSA is up \$1.3 billion, or 13.5 percent above the fiscal year 2010 appropriation. This would make it the largest increase to NNSA's budget since the agency was established, 10 years ago.

Over the past years, I've expressed some concern about the lack of funding to maintain the Nation's nuclear weapon stockpile and to achieve the nonproliferation goals, which I think are very impor-

tant. I'm pleased to see, in this budget request, a clear commitment in increasing NNSA's ability to assess the safety, security and reliability of nuclear weapons. Furthermore, I'm pleased that the NNSA plans to accelerate efforts to secure vulnerable nuclear material around the world, within the coming 4 years.

I have two main concerns, which I hope you will address today, and I'll ask some questions about them.

First, can the NNSA sustain new initiatives and construction projects of the size that we're talking about in the out years? Before we approve very expensive new initiatives, we need to be confident that NNSA has a clear strategy to manage very complex projects concurrently. Further, we need to know that NNSA has sound cost and schedule estimates.

What you're asking for in the fiscal year 2011 request is to ramp up the production of refurbished W76 warheads; begin life extensions for the B61 and W78; increase surveillance activities of retired nuclear weapons; build three major new nuclear facilities, that would each exceed \$3 billion in cost; the Chemistry and Metallurgical Facility at Los Alamos, the Uranium Processing Facility at Y-12, and the Pit Disassembly and Conversion Facility at Savannah River; and expand naval reactor projects, such as designing a new reactor for the Ohio-class ballistic missile submarine.

What I've not seen, and what I want to see, is a plan or a strategy that shows how NNSA will be able to manage this many complex projects at once, and pay for them, in the coming years. We want cost and schedule estimates. Both the GAO and the IG and other independent reviewers have raised questions about NNSA, for cost and schedule estimates, in years past. We believe NNSA—and I know Mr. D'Agostino would agree—just needs to do better.

Despite sizable projected increases in funding, we are also concerned about whether there is an underestimating of budget needs. For example, out-year funding for the three major facilities does not reflect cost increases that could likely exist because of design changes or schedule delays. The second major concern is the rate of increase for the nonproliferation program, which is an increase of \$550 million, or 26 percent, compared to fiscal year 2010. I'm not convinced that that amount of money will be able to be spent quite so quickly, effectively, or efficiently. So, we want to talk a little about that today.

I applaud the efforts to date—for example, through the nonproliferation program, 2,300 kilograms of highly enriched uranium and plutonium, enough material to make 90 nuclear weapons has been removed and disposed of from civilian nuclear sites worldwide. That's a good record. These efforts rely on the cooperation, however, of foreign countries that do not always share our nuclear security concerns. The NNSA needs to show that it has or will produce, or can produce, agreements with countries that justify such a large increase in material retrieval.

I think the NNSA also needs to demonstrate that Russia and other countries will continue to maintain the close to \$3 billion in security upgrades that the United States has funded over 17 years as the United States withdraws financial support. As we have funded these facilities, in the order of safety, just building them and leaving does not necessarily give us the assurance that those

upgrades will last and will continue to be supported by the host countries.

Finally, NNSA needs to demonstrate that nonproliferation funds are being spent effectively and efficiently. They've installed radiation detection equipment at more than 350 borders, in dozens of countries, to prevent smuggling of nuclear materials. But, the GAO has found that the corruption of foreign border security officials, along with technical limitations of radiation detection equipment, inadequate maintenance of some equipment, and the lack of supporting infrastructure at some sites, has hindered the full effectiveness of these activities. Now, we know that the NNSA will address those issues so that we can understand the investment of these funds is leading to real and significant security improvements.

Again, Mr. D'Agostino, we appreciate your being here with your colleagues.

And let me call on Senator Bennett for any opening statements he may have.

OPENING STATEMENT OF SENATOR ROBERT F. BENNETT

Senator BENNETT. Well, thank you very much, Mr. Chairman. And I welcome all of you here.

And, as I listen to the chairman, I find myself in agreement with him. I very much applaud your top-line budget request. You need the money; you've shown the courage of asking for it. And I think we'll do the very best we can to give it you. That's the good news.

The bad news is that the agency's track record in managing large construction projects is not encouraging. And the chairman has outlined that.

And just to underscore what Senator Dorgan has said, you're going to have four major projects underway at once: the Uranium Processing Facility; the CMRR Nuclear Facility, at Los Alamos; two projects at Savannah, the Pit Disassembly and Conversion Facility, and the MOX Fuel Facility. And, these, I understand, are the biggest construction projects NNSA has ever taken on. And then, while you're doing that you're talking about two life-extension programs being carried on simultaneously. And you have never conducted two LEPs at once. And those that you have conducted in the past—not necessarily you, specifically, but the agency—have been over-budget and over-schedule.

So, the money is needed, the repairs are needed, the updating is needed. Everybody agrees with that. But, one thing to say, "Okay, here's the money." It's another thing to say, "How's it going to be spent?" And we need to pin down a lot of items, schedules, who the contractors are going to be, what the track record is that—those who're going to be involved. And we obviously are very interested in your answers to those questions.

And then there's the question of how you spend the tremendous increase you're asking for in nonproliferation area. That's critical to the—ensure international nuclear safety. And with a requested increase of 68 percent for the Global Threat Reduction Initiative, and a past history of large unobligated balances, these are questions that we need to go into.

Now, the chairman has gone into all of these in detail, and I'm simply underscoring my support for his concern in these areas.

You're going to find a very unified subcommittee, both in support for the money and in support for the details that we need to look at.

Senator DORGAN. Senator Bennett, thank you very much.
Senator Feinstein.

PREPARED STATEMENT

Senator FEINSTEIN. I will put my statement in the record.
[The statement follows:]

PREPARED STATEMENT OF SENATOR DIANNE FEINSTEIN

Thank you, Mr. Chairman, and thank you Mr. D'Agostino for taking the time to see us today.

As you know, I have worked with colleagues in the House and Senate to stop the re-opening of the nuclear door and the development of new nuclear weapons.

Together, we have eliminated funding for the Advanced Concepts Initiative, the Robust Nuclear Earth Penetrator, the Modern Pit Facility and the Reliable Replacement Warhead program.

Now, we are working with a new president, one who believes in reclaiming a leadership role for the United States in nuclear non-proliferation issues and shares the vision of a nuclear free world.

In his April 5, 2009 Prague speech, President Obama called for "an end to cold war thinking" and declared that the United States will "reduce the role of nuclear weapons in our national security strategy." Before and after his inauguration, he pledged that he "will not authorize the development of new nuclear weapons."

I am hopeful he will use the upcoming Nuclear Posture Review to craft a new nuclear weapons policy that will help stop the spread of nuclear weapons and chart the course for their elimination from the Earth.

We are in the final stages with Russia on new agreement to make additional cuts to each nation's nuclear arsenal. This is welcome news and I look forward to the conclusions of those talks.

I also appreciate President Obama's support for ratification of the Comprehensive Test Ban Treaty, a critical component of any U.S. nuclear nonproliferation regime.

In his fiscal year 2011 budget for the National Nuclear Security Administration, the President has requested \$11.2 billion, a 13.4 percent increase from fiscal year 2010.

This marks a substantial commitment to maintaining the safety and reliability of our nuclear weapons arsenal and the nuclear weapons complex.

We must ensure that these funds compliment, rather than detract from, the President's vision on nuclear weapons policy and nuclear nonproliferation issues.

I stand ready to work with my colleagues and the administration to craft a sensible, bi-partisan nuclear weapons policy that will keep Americans safe and will reduce the danger of a nuclear war or a nuclear attack.

Senator FEINSTEIN. I have a number of questions, but let me just say this, Mr. Chairman. I want to thank you for your chairmanship of this subcommittee. I guess this is your final appropriations bill. And we've worked together on several items. I think you've brought about, really, sterling leadership, and very impressive—I will miss you. I believe the ranking member will miss you. And I know you will have bright horizons ahead of you, but you darken our skies by leaving.

Senator BENNETT. Yes, I want to associate myself with that. I was just getting settled into the pleasure of working with you, and now you're going to go off to greener pastures. So, we will do our best to carry on your tradition after you've gone, assuming, of course, that I get to stay, as well.

Senator DORGAN. Well, this year will end 30 years in the United States Congress. It's a great privilege, but there are other things I wish to do, and—but, enough of that. You're making me sound like Gabby Hayes, here.

Mr. D'Agostino, thank you for your leadership, thanks for the work you do. Why don't you proceed.

Your entire statement will be part of the permanent record so you may summarize.

STATEMENT OF HON. THOMAS P. D'AGOSTINO

Mr. D'AGOSTINO. Thank you, Mr. Chairman, Senator Bennett, Senator Feinstein.

It's a pleasure to be here. It's a real honor for us to have the opportunity to testify on the President's budget, particularly for the National Nuclear Security Administration.

As you note, I'm accompanied here by folks that have a lot of history and understanding of the program. Admiral Kirk Donald, for naval reactors; Steve Black, who's a chief operating officer in our nonproliferation program; and Brigadier General Gary Harencak, for defense programs.

So, Mr. Chairman, under your leadership, the subcommittee has been a proponent of our NNSA programs and initiatives, and I thank you for the support. The subcommittee's backing will become even more critical as we seek to move forward on programs to implement the President's nuclear security vision. And moving the program in the right direction for many years out in the future, of course, since these programs last many years, it has to be done in a way that makes sense, in a bipartisan sense, because it's important for national security.

Last year when I appeared before you, the focus of my testimony was the continuing of the transformation of this outdated cold war nuclear-weapons complex and moving it into a 21st century national security enterprise and our initial efforts on implementing, the President's announcement, securing the most vulnerable materials worldwide. Since that time, we've identified and defined portfolio programs to meet the President's emerging nuclear security agenda.

Our 2011 budget request, as you've noted, is \$11.2 billion, a 13.4-percent increase from the prior year's appropriation. And in developing this program, Secretary Chu has worked—and I—have worked very closely with Secretary Gates to make sure that we had a program that was integrated across both departments. And, that reflects not just the nuclear weapons program itself, but the nonproliferation program and the naval reactors' activities.

Our request can be summarized, essentially, into four components. Collectively, we ensure that the President's overall nuclear security agenda, as outlined in his April 2009 Prague speech and reinforced during his State of the Union Address—first, our requests describe NNSA's crucial role in implementing this nuclear security vision and its call to secure vulnerable material worldwide within 4 years. The \$2.7 billion request for nonproliferation programs includes key programs related to the President's agenda: nearly \$560 million for the Global Threat Reduction Initiative to secure vulnerable material around the world; over \$1 billion for a fissile material disposition program to permanently eliminate 68 metric tons of surplus weapons-grade plutonium and more than 200 metric tons of surplus highly-enriched uranium; and over \$350 million for the nonproliferation verification research and develop-

ment programs; provide technology support to the President's arms control and nonproliferation agenda, including a new capability at our Nevada site to fully integrate treaty verification in arms control experiments.

The second component is our investment in the tools and capabilities required to effectively manage the stockpile itself. Based on preliminary analysis in the draft Nuclear Posture Review, we concluded that maintaining the safety, security, and effectiveness of the enduring nuclear deterrent requires increased investments to strengthen an aging physical infrastructure and sustain depleted technical human-capital base across our enterprise. Our request includes more than \$7 billion to ensure that the capabilities are required to complete ongoing weapons life-extension activities; to strengthen the science and technology and engineering base; and reinvest in the scientists, technicians, and engineers who perform this mission.

These activities are very consistent with the NNSA's stockpile stewardship and management responsibilities, as outlined in the 2010 National Defense Authorization Act. Vice President Biden recently noted the need to invest in a modern sustainable infrastructure that supports the full range of NNSA's mission, not just stockpile stewardship. He said, "This investment is not only consistent with a nonproliferation agenda, it is essential to it."

And there is an emerging bipartisan consensus that now is the time to make these investments to provide the future foundation for our U.S. security. A key example of that consensus was reflected in the January Wall Street Journal article by Senator Sam Nunn and Secretaries George Shultz, Secretary Henry Kissinger, and Secretary William Perry.

That leads me to the third component of our investment in recapitalizing our nuclear infrastructure and deterrent capability into a 21st-century nuclear security enterprise. As the Vice President said last month, some of the facilities we use to handle uranium and plutonium date back to the days when the world's great powers were led by Truman, Churchill, and Stalin. The signs of age and decay are becoming more apparent every day.

Our request includes specific funds to continue the design of the Uranium Processing Facility at our Y-12 Facility and the construction of the Chemistry and Metallurgy Research Replacement Facility, at Los Alamos.

Our Navy's nuclear fleet includes all of our submarines and aircraft carriers spread over the globe to protect America's interests. The naval reactors budget shows a steady increase over the future year national security plan—our 5-year program, essentially. To meet the operational requirements of the Ohio-class replacement, we will need to provide a new reactor plan, using improved materials that we've not used before. This effort dovetails well into our need to refuel one of our land-based prototypes, which provides the platform to demonstrate the manufacturability of the Ohio replacement core and also to realistically test systems and components. Finally, this prototype serves a key role as an operating reactor plant for training our Navy sailors.

Mr. Chairman, investing now in a modern sustainable nuclear security enterprise is the right thing to do. Investment will support

a full range of nuclear security missions to ensure future security. The range of missions includes stockpile stewardship, nonproliferation and disarmament, arms control and treaty verification, counterterrorism and emergency response, nuclear forensic and naval nuclear propulsion. It's the whole gambit.

Finally, the fourth component, one that ties all our missions together, is our commitment to aggressive management reforms across the NNSA. And I look forward to questions on this. I can go into some detail. But, as you know, with increased resources comes an increased responsibility to be effective stewards of our taxpayers' money and to ensure that we effectively and efficiently manage this. We take this responsibility very seriously.

Take, for example, the costs associated with our physical security posture. As you are well aware, each year the costs of these efforts have risen. We initiated a zero-based security review to implement greater efficiencies and to drive down costs while sustaining, and sometimes even improving, our security capabilities. We recently concluded a review at our Nevada site and identified some potential savings. We will be reviewing other sites shortly.

Next, our supply chain management center has already saved taxpayers more than \$130 million, largely through electronic sourcing and strategic sourcing, essentially tying our enterprise together; instead of having eight separate procurement centers, to try to focus these things together and leverage our purchases. That saved us significant resources.

And, as you may be aware, our Kansas City plant recently won a Malcolm Baldrige Award for manufacturing and quality, for their innovations and performance excellence. We're working to implement that Kansas City model of best business practices across the whole nuclear security enterprise.

And finally, we emphasize performance and financial accountability at all levels of our operation. In 2009, our programs met or exceeded 95 percent of their performance objectives, and over the past 2 years, NNSA has successfully executed large funding increases in several nonproliferation programs while reducing, at the same time, the percentage of carryover, uncosted, and uncommitted funds. We'll be glad to provide details of those, as well.

Importantly, for the subcommittee's consideration, we have the people and process in place to initiate immediately the mission work and increased mission work in this area.

Mr. Chairman and members of the subcommittee, we will ensure that our stockpile, our infrastructure, and our missions are melded together into a comprehensive, forward-looking strategy that protects America and its allies. Investments in nuclear security are now providing the tools to tackle a broad range of nuclear security challenges. Now we must continue to cultivate the talents of our people to use these tools effectively, because essentially, in the end, people are the key to our success here.

Thank you, Mr. Chairman, and we all look forward to your questions.

[The statement follows:]

PREPARED STATEMENT OF HON. THOMAS P. D'AGOSTINO

Thank you for the opportunity to present the fiscal year 2011 President's budget request for the National Nuclear Security Administration (NNSA). This budget request will allow the NNSA to meet its commitments to the American people to provide for nuclear deterrence, to reduce nuclear dangers around the world, and to provide the capabilities to address the broader national security challenges of the 21st century.

At this time last year, the focus of NNSA efforts was the continuing transformation of the cold war-era weapons complex to a 21st century Nuclear Security Enterprise, and transformation of the composition and size of the U.S. nuclear weapons stockpile. Simultaneously, we were in the very early stages of defining the efforts necessary to address the President's policy statements on securing the most vulnerable nuclear materials worldwide.

During the first 14 months of the Obama administration, we have been fully engaged with the Department of Defense (DOD) and the Interagency on the Nuclear Posture Review, and with the Department of State on a new START Agreement and a broad menu of nonproliferation agreements with our international partners.

NNSA efforts this past year defined a portfolio of programs to meet the President's nuclear security agenda for the future. The fiscal year 2011 President's budget request for this portfolio is \$11.2 billion, an increase of more than 13 percent from last year. In the development of this portfolio, Secretary of Energy Chu and NNSA Administrator D'Agostino worked closely with Secretary of Defense Gates and other DOD officials to ensure that we remain focused on meeting the DOD's requirements. As a result, the budget request for Weapons Activities increases nearly 10 percent to a level of \$7 billion; Defense Nuclear Nonproliferation increases nearly 26 percent to a level of \$2.7 billion; Naval Reactors increases more than 13 percent to a level of \$1.1 billion; and, the request for Federal oversight and staff included in the Office of the Administrator account increases by 6.5 percent to a level of nearly \$450 million. NNSA's budget request also includes associated outyear projections in a Future-Years Nuclear Security Program (FYNSP) that identifies resources needed to meet the continuing requirements for significant long term investments in the Nuclear Security Enterprise deliverables, capabilities and infrastructure.

The fiscal year 2011 President's budget request for the NNSA can be summarized in four core components that, collectively, ensure that the NNSA implements the President's overall nuclear security agenda, introduced in his April 2009 Prague speech, re-enforced during the State of the Union Address on January 27, 2010, and will, we believe, be embodied in the soon to be completed Nuclear Posture Review.

Implementing the President's Nuclear Security Vision.—The budget request highlights NNSA's crucial role in implementing President Obama's nuclear security vision, including his call for an international effort to secure all vulnerable nuclear material around the world within 4 years. The request for these efforts is \$2.7 billion (an increase of 25.8 percent over the current year). Key nonproliferation programs reflect significant increases from last year, including;

- Nearly \$560 million for the Global Threat Reduction Initiative (an increase of 68 percent over the current year) to secure vulnerable nuclear materials around the world within 4 years, and to provide a comprehensive approach to deny terrorist access to nuclear and radiological materials at civilian sites worldwide;
- Over \$1 billion for our Fissile Materials Disposition program (an increase of 47 percent over the current year) for construction of the Mixed Oxide (MOX) Fuel Fabrication Facility and the Waste Solidification Building, design of the Pit Disassembly and Conversion Facility, and meeting our commitment to support Russian plutonium disposition activities;
- More than \$590 million for Material Protection, Control, and Accounting and Second Line of Defense activities to accelerate securing nuclear materials in the Former Soviet Union and other Asian states, as well as worldwide efforts to deter, detect, and respond to nuclear smuggling events; and
- Over \$350 million for the Nonproliferation and Verification Research and Development programs (an increase of 10 percent over the current year) to provide the key technical support for the President's arms control and nonproliferation agenda.

Managing the Nuclear Weapons Stockpile.—Based on a preliminary analysis of the draft Nuclear Posture Review, the Department concluded that maintaining the safety, security, and effectiveness of the nuclear deterrent without nuclear testing—especially at lower stockpile numbers—requires increased investments to strengthen an aging physical infrastructure and to sustain a depleting technical human capital base across the Nuclear Security Enterprise. As such, we are requesting more than

\$7 billion (an increase of 9.8 percent over the current year) in the Weapons Activities appropriation to:

- Ensure the capabilities required for stockpile management and for the completion of ongoing Life Extension Programs are available;
- Strengthen the Science, Technology, and Engineering base capabilities that underpin stockpile stewardship, without nuclear testing, as well as all other NNSA nuclear security activities; and
- Reinvest in the scientists, technicians, and engineers who perform the mission across the Nuclear Security Enterprise.

The President's Budget Request is consistent with the principles of the Stockpile Management Program outlined by Congress in the fiscal year 2010 National Defense Authorization Act.

Recapitalizing Our Nuclear Infrastructure and Deterrent Capability.—These increases represent an investment in transforming our outdated nuclear weapons complex into a 21st century Nuclear Security Enterprise. This request includes funds to continue the design of the Uranium Processing Facility at the Y-12 facility; the design and construction of the replacement for the Chemistry and Metallurgy Research facility at the Los Alamos National Laboratory; and, conceptual design for the recapitalization of Naval Reactor's Expended Core Facility at the Idaho National Laboratory. Investing in a modern, sustainable nuclear security infrastructure supports the full range of NNSA's nuclear security missions, including:

- Stockpile stewardship;
- Nuclear nonproliferation and disarmament;
- Arms control treaty monitoring;
- Nuclear forensics;
- Counterterrorism and emergency response; and
- the nuclear Navy.

Additionally, the request supports the recent Department of Defense decision to recapitalize the sea-based strategic deterrent. The OHIO-class ballistic submarines, the most survivable leg of the Nation's strategic deterrent, are reaching the end of their operational life. The request will enable Naval Reactors to continue reactor plant design and development efforts begun in 2010 for procurement of long-lead reactor plant components in 2017, in support of Navy procurement of the first OHIO-class submarine replacement in 2019. Providing the OHIO-class replacement a life-of-the-ship reactor core will require substantial advances in manufacturing technology to provide a new cladding and a new fuel system. The request also supports the refueling of a land based prototype reactor, providing a cost effective test platform for these new technologies.

Continuing NNSA Management Reforms.—With the increased resources provided by the Congress comes an increased responsibility to be effective stewards of the taxpayer's money. NNSA will continue to promote proactive, sound management reforms that save money, improve the way we do business, and increase efficiency. Following are a few of the efforts already underway:

- A Zero-Based Security Review initiative has led to efficiencies in our site security programs, helping drive down those costs while sustaining core physical security capabilities.
- An Enterprise Re-engineering Team is implementing ideas for improving the way NNSA does business, such as:
 - A Supply Chain Management Center has already saved the taxpayers more than \$130 million since its inception in 2007 and is expanding its focus. Two key elements of the Center are:
 - eSourcing*.—an electronic sealed-bidding and reverse auction function; and
 - Strategic Sourcing*.—where our Management and Operating contractors use their combined purchasing power to negotiate multi-site commodity contracts with vendors.
- A moratorium on new, NNSA-initiated Reviews and re-direction of those resources to improve Contractor Management Systems and operations and oversight across the Nuclear Security Enterprise.
- Issuing new NNSA Operating Principles to guide the priorities and decision processes of entities that perform NNSA work consistently across the Nuclear Security Enterprise.
- Applying a new performance-based model, best business practices, and lessons-learned across the Nuclear Security Enterprise. The model, pioneered at our Kansas City Plant, provides greater contractor flexibility and accountability; better focused, risk-based oversight; eliminates redundant and non-value-added reviews; and improves efficiencies and availability of Federal and contractor resources to support the full scope of NNSA missions.

- Reducing contractor expenses through renegotiation of health and dental plans, using common contracts for administration and supplies, and converting plant shifts for five 8-hour days to four 10-hour day shifts.
- Retaining the critical Federal workforce.
- Piloting for the Department a 5 year Office of Personnel Management Demonstration Project on Pay-for-Performance and Pay Banding to test new Human Resource concepts to recruit and retain a high caliber staff by providing faster pay progression for high-performing employees, and to build on the workforce planning system to better identify competency needs and gaps.
- Conducting a Future Leaders Program and sponsoring Historically Black Colleges and Universities, Hispanic Serving Institutions, Native American Serving Institutions, and other intern and fellowship programs to bring into government the best and brightest talent in science, engineering, business, and other technical positions to ensure that when our aging workforce retires, it is replaced with competent, well-trained, and experienced professionals to carry on the mission work of the NNSA.

Finally, NNSA continues to emphasize performance and financial accountability at all levels of our operations. NNSA needs to assure the subcommittee and the taxpayers that we are an excellent steward of the programs and funds the Congress entrusts to us to carry out the President's nuclear security vision. In 2009, NNSA met 95 percent of its stated program performance objectives, and, over the past 2 years, NNSA successfully executed consecutive, large annual funding increases in several of our nonproliferation programs while reducing uncosted, uncommitted balances. We are ready to meet the challenge of executing the additional program increases supported by the fiscal year 2011 President's budget request. Our Federal and contractor staff and our contracting processes are in place to initiate immediately the increased mission work both in the United States and abroad. The NNSA will be a leader in successful program and financial execution for the Department of Energy and for the U.S. Government.

The NNSA is not operating on a "business-as-usual" basis. The budget request represents a comprehensive approach to ensuring the nuclear security of our Nation. NNSA will ensure that our strategic posture, our nuclear weapons stockpile, and our infrastructure, along with our nonproliferation, arms control, emergency response, counterterrorism, and naval propulsion programs, are melded into one comprehensive, forward-looking strategy that protects America and its allies.

Maintaining the nuclear weapons stockpile is the core work in the NNSA. However, the science, technology, and engineering capabilities, which enable the core work, must also continue to focus on providing a sound foundation for ongoing nonproliferation and other threat reduction programs. The investment in nuclear security is providing the tools that can tackle a broad array of national security and energy challenges and in other realms. NNSA now has the tools, but must continue to cultivate the talents of the people to use them effectively.

The NNSA is developing the next generation of scientists, engineers, and technicians required to meet our enduring deterrence requirements as well as the critical work in nonproliferation, nuclear counterterrorism, and forensics. People are ultimately our most important resource. We are working closely with our national laboratories to develop and retain the necessary cadre of the best and the brightest to successfully carry out all of our technically challenging programs into the foreseeable future.

Following are more detailed descriptions of each of the four specific NNSA appropriations.

NATIONAL NUCLEAR SECURITY ADMINISTRATION BUDGET OVERVIEW

The President's budget request for the NNSA contains budget information for 5 years as required by section 3253 of Public Law 106-065, entitled Future-Years Nuclear Security Program (FYNSP). The FYNSP projects \$57.9 billion for NNSA programs through fiscal year 2015. While the funding necessary to support the President's commitment to lead an international effort to secure vulnerable nuclear materials throughout the world is focused in the near term, major longer term funding commitments are needed in other NNSA programs. The Secretaries of the Department of Defense (DOD) and the Department of Energy (DOE) agree that it is necessary to modernize the nuclear security infrastructure of the United States, and this will require the investments over the long-term reflected in the FYNSP. Modernization of the infrastructure, including major capital projects, is needed to ensure safe, secure, sustainable and cost-effective operations in support of scientific and manufacturing activities. It is also necessary to bolster key scientific, technical and manufacturing capabilities needed to ensure that the U.S. nuclear weapons stock-

pile remains safe, secure and effective while avoiding the requirement for new nuclear tests. Increased outyear resources are also included for major new deliverables in support of the nuclear navy, including reactor plant development for the OHIO-class replacement submarine, core manufacturing for and refueling of the technology demonstration land-based prototype, and initial planning for the recapitalization of spent nuclear fuel infrastructure.

NNSA PROGRAM SUMMARIES

The fiscal year 2011 President's budget request for the NNSA is \$11.2 billion, a 13.4 percent increase over the fiscal year 2010 appropriated level. Out-year projections meet the requirements for significant long-term investments in the nuclear security enterprise deliverables, capabilities and infrastructure.

Weapons Activities Appropriation

The request for this appropriation is \$7.0 billion; an increase of 9.8 percent over the fiscal year 2010 appropriated level. This level is sustained and increased in the later out-years.

Although no change to the existing program budget structure within this appropriation is proposed in this budget, we will address the current programs within the Weapons Activities appropriation in four related components:

- Stockpile Support (Directed Stockpile Work, Readiness Campaign);
- Science, Technology and Engineering (Science Campaign, Engineering Campaign, Inertial Confinement Fusion and High Yield Campaign, Advanced Simulation and Computing Campaign, Science, Technology and Engineering Capability);
- Infrastructure (Readiness in Technical Base and Facilities, Secure Transportation Asset, Facilities and Infrastructure Recapitalization Program, Site Stewardship); and
- Security and Nuclear Counterterrorism (Defense Nuclear Security, Cyber Security, Nuclear Counterterrorism Incident Response).

Increased funding is requested for programs in Stockpile Support, for Scientific, Technology and Engineering activities related to maintenance assessment and certification capabilities for the stockpile, and for critical infrastructure improvements. The Security and Nuclear Counterterrorism component decreases about 3 percent from the fiscal year 2010 appropriated levels, attributable to continuing efficiencies in the Defense Nuclear Security programs budget.

This multi-year increase reflects the President's commitment to maintain the safety, security and effectiveness of the nuclear deterrent without underground nuclear testing, consistent with the principles of the Stockpile Management Program outlined in section 3113(a)(2) of the National Defense Authorization Act of fiscal year 2010 (50 U.S.C. 2524). The nuclear security requirements driving this budget request include improvements to the safety and security of the enduring stockpile; a strengthened science, technology, and engineering base; and a recapitalized physical infrastructure. The enterprise must also be responsive to an arguably more complex future national defense environment than the singular cold-war context within which the legacy deterrent was built.

The President's budget request provides funding necessary to protect and advance the scientific capabilities at the U.S. national security laboratories—including the ability to maintain the nuclear deterrent as well as development and engineering expertise and capabilities—through a stockpile stewardship program that fully exercises these capabilities.

This budget request is responsive to fiscal year 2010 Congressional direction to carry out a Stockpile Management Program in support of stockpile stewardship that provides for effective management of the weapons in the nuclear weapons stockpile. This program will strengthen the stockpile activities, including life extension programs and surveillance; strengthen science, technology and engineering, including the workforce; and modernize the aging infrastructure, particularly special nuclear materials capabilities. The key objectives of the Stockpile Management Program include:

- Increase the reliability, safety, and security of the stockpile;
- Further reduce the likelihood of the need to resume underground nuclear testing;
- Achieve further reductions in the future size of the stockpile;
- Reduce the risk of an accidental detonation; and
- Reduce the risk of an element of the stockpile being used by a person or entity hostile to the United States, its vital interests, or its allies.

The Stockpile Support component of this appropriation includes Directed Stockpile Work and the supporting Readiness Campaign. The President's budget request is

\$2.0 billion, an increase of 25.2 percent over the fiscal year 2010 appropriation. This provides for the Stockpile Management Program, including surveillance, maintenance, assembly, disassembly and dismantlement activities, and will fully support the ongoing Life Extension Programs for the W76 warhead and the refurbishment of the B61 bomb. The budget request will enhance surveillance efforts, and ensure that capabilities and capacity are available so that future warhead life extension programs will allow for increased margin and enhanced warhead safety, security and control. The request will initiate a study in fiscal year 2011 to evaluate future options and approaches to maintaining the W78, consistent with the principles of the Stockpile Management Program defined in section 3113(a)(2) of the National Defense Authorization Act of fiscal year 2010 (50 U.S.C. 2524).

The Science, Technology and Engineering (STE) component of this appropriation includes the Science Campaign, Engineering Campaign, Inertial Confinement Fusion and High Yield Campaign, Advanced Simulation and Computing Campaign, and Science, Technology and Engineering Capability. The President's budget request of \$1.6 billion is an increase of 10.4 percent over the fiscal year 2010 appropriation and will restore sufficient funds for the science and technology base that supports stockpile assessment and certification in the absence of nuclear testing. Within this request, the Inertial Confinement Fusion and High Yield Campaign is requested at \$481.5 million. Construction of the National Ignition Facility (NIF) was completed in fiscal year 2009, and the first in a series of ignition experiments beginning in the summer of 2010 will attempt to compress, implode, and ignite a layered deuterium-tritium capsule with a ~1.3 megajoule energy pulse from the NIF. Regardless of the specific status of ignition, fiscal year 2011 will present a very demanding agenda of work in the ignition effort. Results from the first ignition experiments in 2010 will be analyzed in detail, and the intensive process of tuning laser and target parameters for optimum performance will continue toward development of a robust ignition platform by the end of 2012. The NIF is designed to provide critical scientific data to support the stockpile without underground nuclear testing.

Computation and simulation underpin all of our science, technology and engineering, and are pervasive throughout the activities in the nuclear security enterprise. The fiscal year 2011 President's budget request of \$616 million for the Advanced Simulation and Computing Campaign will enable a stronger simulation program and inject a renewed scientific rigor back into the program. Developing robust peer review among the national security laboratories as we move away from the test base experience is essential to being able to maintain a stockpile without underground testing. Comprehensive uncertainty quantification calculations in 3D will provide the confidence necessary to make reliable progress toward the predictive capability necessary to address stockpile aging issues. In the next decade, predictive capability and specific warhead simulation deliverables will demand ever more powerful and sophisticated simulation environments. This request will position the national security laboratories to take advantage of future platform architectures to more efficiently steward the stockpile.

Also within the STE component, the new subprogram to provide collaborative efforts in intelligence analysis, which was created in response to congressional funding in the Supplemental Appropriations Act, 2009, continues in fiscal year 2011. This subprogram provides a focal point for science, technology and engineering in NNSA, and will facilitate a point of entry for the wider national security community into NNSA's programs and facilities. The fiscal year 2009 supplemental funding provided for laboratory efforts in intelligence analysis. The fiscal year 2011 request will support NNSA's commitment to a 5 year Memorandum of Understanding with the Defense Threat Reduction Agency for national security research and development of mutual interest. At this time, the defined focus areas of mutual interest are: Advanced Science and Forensics, Experimental Capabilities, Science Based Output, Active Interrogation of Special Nuclear Material, and Nuclear Weapons Effects Modeling and Simulation.

The Infrastructure component of the appropriation includes Readiness in Technical Base and Facilities, Secure Transportation Asset, Facilities and Infrastructure Recapitalization Program, and Site Stewardship. The President's budget request is \$2.3 billion, a 4.8 percent increase over the fiscal year 2010 level. Transformation and maintenance of supporting physical infrastructure for the nuclear security enterprise is a high priority in the upcoming FYNSP. Along with the funding to support the ongoing operations of the Government-owned, contractor operated laboratories and manufacturing facilities, the President's budget request includes funding for major long-term construction projects needed to restore critical capabilities in plutonium and uranium essential to the Stockpile Management program.

The President's budget request includes funding to complete the design and begin construction of the Chemistry and Metallurgy Research Facility Replacement—Nu-

clear Facility at the Los Alamos National Laboratory. This facility conducts plutonium research and development and provides analytical capabilities in support of pit surveillance and production. The facility will also support the broad range of NNSA's nuclear security missions, including: (1) stockpile stewardship; (2) nuclear nonproliferation and disarmament; (3) arms control treaty monitoring; (4) nuclear forensics; and, (5) counterterrorism and emergency response. Current planning schedules full operation in 2022. A related project is requested to improve the safety profile at the adjoining PF-4 facility. The budget request also includes funding for continuing the design and construction planning of the Uranium Processing Facility at the Y-12 National Security Complex to support production and surveillance of highly-enriched uranium components. This facility is also planned to achieve full operations by 2022.

Maintaining and improving the current infrastructure is also an important priority for NNSA. The Facilities and Infrastructure Recapitalization Program is continuing to reduce the deferred maintenance backlog as it proceeds toward its planned conclusion in 2013. Increased funding is provided for the Site Stewardship program that integrates institutional/landlord functions for our sites, including regulatory-driven long-term Stewardship, Nuclear Materials Consolidation, and energy efficiency projects.

The Security and Nuclear Counterterrorism component of the appropriation includes Defense Nuclear Security, Cyber Security, and Nuclear Counterterrorism Incident Response. The President's budget request for these programs is \$1.1 billion, which, except for a 5 percent increase in Nuclear Counterterrorism and Incident Response, represents an overall 3.2 percent decrease from fiscal year 2010 appropriated levels. The decrease reflects efficiencies expected to be gained from risk-informed decisions identified through the Defense Nuclear Security program's Zero-Based Security Review, consistent with implementation of the Graded Security Protection Policy.

Defense Nuclear Nonproliferation Appropriation

The request for this appropriation is \$2.7 billion; an increase of 25.8 percent over the fiscal year 2010 appropriated level. The increase is driven by the imperative for U.S. leadership in nonproliferation initiatives both here and abroad, including the consolidation of fissile materials disposition activities into this account. In addition to the programs funded solely by the NNSA, our programs support the Department of Energy mission to protect our national security by preventing the spread of nuclear weapons and nuclear materials to terrorist organizations and rogue states. These efforts are implemented in part through the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, formed at the G8 Kananaskis Summit in June 2002, and the Global Initiative to Combat Nuclear Terrorism, launched in Rabat, Morocco, in October 2006.

The fiscal year 2011 President's budget request reflects support for the President's direction to secure vulnerable nuclear materials around the world in 4 years. The International Nuclear Materials Protection and Cooperation (MPC&A) program increases by 3 percent to support selective new security upgrades to buildings and areas that were added to the cooperation after the Bratislava summit, additional Second Line of Defense sites, sustainability of MPC&A upgrades, and continued expansion of nuclear and radiological material removal. The Global Threat Reduction Initiative increases by 68 percent to support an increase in reactor conversions and shutdowns, acceleration of domestic production capability of Molybdenum-99, and an acceleration of the removal and disposition of high-priority, vulnerable nuclear materials in full support of the President's nuclear security agenda. The Fissile Materials Disposition program increases by 47 percent reflecting continuing domestic construction on the MOX Fuel Fabrication Facility, and the design and construction of two major supporting facilities.

The NNSA's nonproliferation programs seek to secure nuclear materials worldwide that could be used for weapons and to convert such materials for peaceful applications, and, through the Second Line of Defense Program, provide the tools for partner countries to detect and interdict smuggling of these materials across international borders.

The Nuclear Nonproliferation Research and Development (R&D) activities seek to improve detection of nuclear material production and movement through advanced R&D. The program draws on the vast technical expertise of the NNSA and DOE national laboratories, as well as academia and industry, the program delivers solutions to the hardest technical nuclear security challenges. Focusing on nuclear detection instrumentation development that is tightly coordinated across Federal and international agencies, these advanced detection techniques are a significant contributor to the U.S. ability to detect foreign nuclear materials production as well as

the illicit movement of those materials. Further, the R&D program provides the backbone for advances in U.S. and international capabilities to monitor nuclear-related treaty obligations. In keeping with the President's commitment for verifiable treaties, the R&D program's fiscal year 2011 budget request increases by 10 percent over the current year to include a more robust set of testing and evaluation activities to demonstrate new U.S. treaty monitoring capabilities.

The fiscal year 2011 President's budget request has consolidated all of the funding requests for the Fissile Materials Disposition activities within the Defense Nuclear Nonproliferation appropriation. The current funding for both the MOX Fuel Fabrication Facility and Waste Solidification Building projects were moved in the fiscal year 2010 appropriation, and the Pit Disassembly and Conversion Facility project has been moved back to Defense Nuclear Nonproliferation appropriation starting in fiscal year 2011. The DOE has decided to explore a proposed combination of the Office of Environmental Management Plutonium Preparation Project and the Pit Disassembly and Conversion Project in a single project located in an existing K-Area Facility at the Savannah River Site. This activity will be evaluated using the Department's project management order, DOE O 413, and will move toward a Critical Decision 1 (approval of alternative selection and cost range).

The United States continues to work with the Russian Federation on plutonium disposition in Russia pursuant to the Plutonium Management and Disposition Agreement reached in September 2000. Congress had appropriated \$200 million in a fiscal year 1999 Supplemental Appropriation to support Russian plutonium disposition activities; however, \$207 million of this and other funding for this program was rescinded in fiscal year 2008 due to lack of progress in Russia. The fiscal year 2011 request includes \$100 million of the U.S. commitment to provide \$400 million to support plutonium disposition in Russia once a Protocol amending the 2000 Agreement, related liability provisions, and a monitoring and inspection regime is signed. The balance of more than \$2 billion in remaining cost associated with Russian plutonium disposition would be borne by Russia and non-U.S. contributions.

Naval Reactors Appropriation

The request for this appropriation is \$1.1 billion; an increase of 13.3 percent over the fiscal year 2010 appropriated level. The program directly supports the U.S. Navy's nuclear fleet, which encompasses all Navy submarines and aircraft carriers. The nuclear fleet is comprised of 54 attack submarines, 14 ballistic missile submarines, 4 guided missile submarines, and 11 aircraft carriers. These ships, and their consistent forward presence, are relied on every day, all over the world, to protect our national interests.

Naval Reactors has a long history of providing safe and reliable Naval nuclear propulsion. This requires continual analysis for prompt identification of leading indicators from fleet operations and careful engineering to assure prudent, yet timely modernization, and scrupulous maintenance. Over the last decade, funding for these successful endeavors has been relatively constant. The onset of unavoidable, nondiscretionary requirements for spent reactor fuel processing and replacement, and maintenance and disposal of an aging support infrastructure has required continued rebalancing of funding priorities. Those priorities coupled with new challenges necessitated the additional funding included in the budget request. Increases in the fiscal year 2011 President's budget request support three key deliverables—the OHIO-class submarine replacement reactor plant, the refueling of the land-based prototype located in New York, and the Expended Core Facility at the Naval Reactors Facility located on the Idaho National Laboratory.

The most survivable leg of the Nation's strategic deterrent, the OHIO-class ballistic missile submarines are reaching the end of their operational life. Propulsion plant design and development efforts began in 2010 to support Navy procurement of reactor plant components in 2017, for ship construction starting in 2019. This schedule for development is consistent with previous designs. Key technical challenges include an effort to lower total ownership costs while maintaining the traditionally high operational availability of this new ship. The most important challenge to meet this is a life-of-the-ship reactor core.

The DOE land-based prototype reactor, which has served the Program's needs for R&D and training since 1978, requires refueling in 2017. The reactor provides a cost-effective test platform for new technologies and components before they are introduced for Fleet applications, supports testing and evaluation of materials, and provides a vital training platform for reactor plant operators. The land-based prototype refueling will also provide key technical data for the OHIO-class submarine replacement, since the reactor core work to support the refueling will also support the core manufacturing development for the OHIO-class replacement. This approach is based on Naval Reactors' extensive experience in reactor design—taking advantage

of the prototype refueling opportunity to proof-test new manufacturing techniques for reactor fuel cladding material never previously used by the Navy. This will reduce technical risk in manufacturing the OHIO-class replacement life-of-the-ship core.

The Expended Core Facility (ECF) is the central location for naval spent nuclear fuel receipt, inspection, dissection, packaging, and secure dry storage, as well as detailed examination of spent cores and irradiated specimens. The existing facility is more than 50 years old, and its mission has evolved significantly over time. While serviceable, it no longer efficiently supports the nuclear Fleet or the work required to meet the agreements we have with the State of Idaho for naval spent fuel. To minimize risks associated with an aging facility and support the timely refueling and defueling of nuclear-powered warships, construction is targeted to begin by 2015. Uninterrupted ECF receipt of naval spent nuclear fuel is vital to the timely, constant throughput of ship refuelings and return of these capital warships to the Fleet. The mission need statement for this project has been approved, and conceptual design and alternative analysis efforts began in 2010.

Office of the Administrator Appropriation

The request for this appropriation is \$448.3 million; an increase of 6.5 percent over the fiscal year 2010 appropriated level. This appropriation provides for the Federal staff and related support for the NNSA Headquarters and field organizations. The Federal personnel level for fiscal year 2011 is projected at 1,970 Full Time Equivalents, essentially level with the expectation for fiscal year 2010. Implicit in the request is a 1.4 percent cost of living adjustment and a 3.3 percent increase for performance-based salary increases, awards, and benefit escalation associated with the Federal workforce. Other increases reflect full funding for NNSA site office space requirements across the Nuclear Security Enterprise, funds for new building maintenance and lease requirements, and expansion of NNSA international offices for the NNSA's nonproliferation programs.

NATIONAL NUCLEAR SECURITY ADMINISTRATION—APPROPRIATION AND PROGRAM SUMMARY TABLES—OUT-YEAR APPROPRIATION SUMMARY TABLE—FISCAL YEAR 2011 BUDGET TABLES

NATIONAL NUCLEAR SECURITY ADMINISTRATION—OVERVIEW—APPROPRIATION SUMMARY

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
National Nuclear Security Administration:			
Office of the Administrator	439,190	420,754	448,267
Weapons Activities	6,410,000	6,384,431	7,008,835
Defense Nuclear Nonproliferation	1,545,071	2,136,709	2,687,167
[non-add MOX Project funded in other appropriations]	[278,879]	(¹)	(¹)
Naval Reactors	828,054	945,133	1,070,486
Total, NNSA	9,222,315	9,887,027	11,214,755
Transfer of prior year balances—OMB scoring		— 10,000	
Total, NNSA		9,877,027	

¹ N/A.

OUT-YEAR APPROPRIATION SUMMARY—NNSA FUTURE-YEARS NUCLEAR SECURITY PROGRAM (FYNSP)

[In thousands of dollars]

	Fiscal Year 2011	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
NNSA:					
Office of the Administrator	448,267	426,424	430,726	435,069	448,498
Weapons Activities	7,008,835	7,032,672	7,082,146	7,400,966	7,648,200
Defense Nuclear Nonproliferation	2,687,167	2,507,191	2,715,191	2,833,243	2,956,328

**OUT-YEAR APPROPRIATION SUMMARY—NNSA FUTURE-YEARS NUCLEAR SECURITY PROGRAM
(FYNSP)—Continued**
[In thousands of dollars]

	Fiscal Year 2011	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Naval Reactors	1,070,486	1,099,734	1,171,178	1,226,017	1,310,530
Total, NNSA	11,214,755	11,066,021	11,399,241	11,895,295	12,363,556

OFFICE OF THE ADMINISTRATOR—OVERVIEW—APPROPRIATION SUMMARY BY PROGRAM
[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation ¹	Fiscal Year 2011 Request
Office of the Administrator:			
Office of the Administrator	415,878	418,074	448,267
Congressionally Directed Projects	23,312	13,000	.....
Use of Prior Year Balances .....	.....	— 10,320	.....
Total, Office of the Administrator	439,190	420,754	448,267
Transfer of Prior Year Balances .....	.....	— 10,000	.....
Total, OMB Scoring	439,190	410,754	448,267

¹ In accordance with Public Law 111–85, \$10,000,000 of Office of the Administrator prior year balances have been transferred to Non-Defense Environmental Cleanup for cleanup efforts at the Argonne National Laboratory.

Public Law Authorization

Energy and Water Development and Related Agencies Appropriations Act, 2010 (Public Law 111–85).

Fiscal year 2009 Omnibus Appropriations Act (Public Law 111–8).

National Nuclear Security Administration Act (Public Law 106–65), as amended.

OUT-YEAR APPROPRIATION SUMMARY
[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Office of the Administrator	426,424	430,726	435,069	448,498

**OFFICE OF THE ADMINISTRATOR—CONGRESSIONALLY DIRECTED PROJECTS—FUNDING PROFILE BY
SUBPROGRAM**
[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Congressionally Directed Projects	23,312	13,000	.....

WEAPONS ACTIVITIES—OVERVIEW—FUNDING PROFILE BY SUBPROGRAM
[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Weapons Activities:			
Directed Stockpile Work	1,590,152	1,505,859	1,898,379
Science Campaign	316,690	295,646	365,222
Engineering Campaign	150,000	150,000	141,920
Inertial Confinement Fusion Ignition and High Yield Campaign	436,915	457,915	481,548
Advanced Simulation and Computing Campaign	556,125	567,625	615,748

WEAPONS ACTIVITIES—OVERVIEW—FUNDING PROFILE BY SUBPROGRAM—Continued

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Readiness Campaign	160,620	100,000	112,092
Readiness in Technical Base and Facilities	1,674,406	1,842,870	1,848,970
Secure Transportation Asset	214,439	234,915	248,045
Nuclear Counterterrorism Incident Response	215,278	221,936	233,134
Facilities and Infrastructure Recapitalization Program	147,449	93,922	94,000
Site Stewardship .....	.....	61,288	105,478
Environmental Projects and Operations	38,596	.....	.....
Defense Nuclear Security	735,208	769,044	719,954
Cyber Security	121,286	122,511	124,345
Science, Technology and Engineering Capability	30,000	.....	20,000
Congressionally Directed Projects	22,836	3,000	.....
Use/Rescission of Prior Year Balances .....	.....	— 42,100	.....
Total, Weapons Activities	6,410,000	6,384,431	7,008,835

Public Law Authorization

National Defense Authorization Act for Fiscal Year 2010 (Public Law 111–84).
 Energy and Water Development and Related Agencies Appropriations Act, 2010
 (Public Law 111–85).
 National Nuclear Security Administration Act, (Public Law 106–65), as amended.

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Weapons Activities:				
Directed Stockpile Work	1,900,736	1,999,470	2,240,139	2,346,254
Science Campaign	397,460	418,823	416,199	394,766
Engineering Campaign	149,737	134,996	144,920	145,739
Inertial Confinement Fusion Ignition and High Yield Cam- paign	480,451	475,597	470,994	484,812
Advanced Simulation and Computing Campaign	622,940	616,257	615,420	633,134
Readiness Campaign	81,697	70,747	69,854	72,584
Readiness in Technical Base and Facilities	1,872,546	1,841,325	1,926,568	1,997,764
Secure Transportation Asset	251,272	249,456	252,869	261,521
Nuclear Counterterrorism Incident Response	222,914	222,508	235,300	237,986
Facilities and Infrastructure Recapitalization Program	94,000	94,000	.....	.....
Site Stewardship	101,929	103,536	174,071	205,802
Defense Nuclear Security	730,944	729,609	728,925	740,649
Cyber Security	126,046	125,822	125,707	127,189
Total, Weapons Activities	7,032,672	7,082,146	7,400,966	7,648,200

DIRECTED STOCKPILE WORK—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Directed Stockpile Work:			
Life Extension Programs:			
B61 Life Extension Program	1,854	.....	.....
W76 Life Extension Program	203,189	223,196	249,463
Subtotal, Life Extension Programs	205,043	223,196	249,463

DIRECTED STOCKPILE WORK—FUNDING PROFILE BY SUBPROGRAM—Continued

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Stockpile Systems:			
B61 Stockpile Systems	90,204	91,956	317,136
W62 Stockpile Systems	1,500		
W76 Stockpile Systems	63,219	56,554	64,521
W78 Stockpile Systems	40,347	48,311	85,898
W80 Stockpile Systems	30,712	27,398	34,193
B83 Stockpile Systems	26,938	33,502	39,349
W87 Stockpile Systems	40,949	48,139	62,603
W88 Stockpile Systems	43,928	51,940	45,666
Subtotal, Stockpile Systems	337,797	357,800	649,366
Weapons Dismantlement and Disposition:			
99-D-141-01 Pit Disassembly and Conversion Facility— SRS	24,883		
99-D-141-02 Waste Solidification Building—SRS	40,000		
Weapons Dismantlement and Disposition	52,695	96,100	58,025
Pit Disassembly and Conversion Facility—O&M	69,351		
Subtotal, Weapons Dismantlement and Disposition	186,929	96,100	58,025
Stockpile Services:			
Production Support	308,806	300,037	309,761
Research & Development Support	35,049	37,071	38,582
Research & Development Certification and Safety	169,403	166,523	209,053
Management, Technology, and Production	192,072	183,223	193,811
Plutonium Capability	155,053		
Plutonium Sustainment		141,909	190,318
Subtotal, Stockpile Services	860,383	828,763	941,525
Total, Directed Stockpile Work	1,590,152	1,505,859	1,898,379

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Directed Stockpile Work:				
Life Extension Programs:				
W76 Life Extension Program	255,000	255,000	255,000	255,000
Subtotal, Life Extension Programs	255,000	255,000	255,000	255,000
Stockpile Systems:				
B61 Stockpile Systems	337,851	394,027	437,518	512,296
W76 Stockpile Systems	56,418	58,312	55,396	54,038
W78 Stockpile Systems	104,964	156,340	346,923	345,359
W80 Stockpile Systems	31,627	34,566	35,974	36,621
B83 Stockpile Systems	37,160	38,294	42,621	42,059
W87 Stockpile Systems	67,754	64,924	51,898	50,433
W88 Stockpile Systems	61,229	65,094	69,777	68,648
Subtotal, Stockpile Systems	697,003	811,557	1,040,107	1,109,454
Weapons Dismantlement and Disposition	53,327	48,446	58,102	60,089
Stockpile Services:				
Production Support	288,227	271,067	265,429	274,509

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM—Continued

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Research & Development Support	35,044	34,667	35,497	36,711
Research & Development Certification and Safety	207,133	213,923	214,632	222,777
Management, Technology, and Production	202,020	196,676	198,660	205,454
Plutonium Sustainment	162,982	168,134	172,712	182,260
Subtotal, Stockpile Services	895,406	884,467	886,930	921,711
Total, Directed Stockpile Work	1,900,736	1,999,470	2,240,139	2,346,254

SCIENCE CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Science Campaign:			
Advanced Certification	19,400	19,400	76,972
Primary Assessment Technologies	80,181	83,181	85,723
Dynamic Plutonium Experiments	23,022		
Dynamic Materials Properties	83,231	86,617	96,984
Advanced Radiography	28,535	28,535	23,594
Secondary Assessment Technologies	76,913	77,913	81,949
Test Readiness	5,408		
Total, Science Campaign	316,690	295,646	365,222

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Science Campaign:				
Advanced Certification	104,704	129,481	129,978	98,908
Primary Assessment Technologies	86,253	85,248	84,327	87,165
Dynamic Materials Properties	97,114	95,980	94,945	98,144
Advanced Radiography	27,132	26,816	26,528	27,421
Secondary Assessment Technologies	82,257	81,298	80,421	83,128
Total, Science Campaign	397,460	418,823	416,199	394,766

ENGINEERING CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Engineering Campaign:			
Enhanced Surety	46,111	42,000	42,429
Weapon Systems Engineering Assessment Technology	16,593	18,000	13,530
Nuclear Survivability	21,100	21,000	19,786
Enhanced Surveillance	66,196	69,000	66,175
Total, Engineering Campaign	150,000	150,000	141,920

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Engineering Campaign:				
Enhanced Surety	44,019	43,699	48,851	50,523
Weapon Systems Engineering Assessment Technology	16,533	15,199	19,730	20,404
Nuclear Survivability	20,627	18,550	10,334	10,687
Enhanced Surveillance	68,558	57,548	66,005	64,125
Total, Engineering Campaign	149,737	134,996	144,920	145,739

INERTIAL CONFINEMENT FUSION IGNITION AND HIGH YIELD CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Inertial Confinement Fusion Ignition and High Yield Campaign:			
Ignition	100,535	106,734	109,506
NIF Diagnostics, Cryogenics, and Experimental Support	66,201	72,252	102,649
Pulsed Power Inertial Confinement Fusion	8,652	5,000	5,000
Joint Program in High Energy Density Laboratory Plasmas	3,053	4,000	4,000
Facility Operations and Target Production	203,282	269,929	260,393
NIF Assembly and Installation Program	55,192	.....	.....
Total, Inertial Confinement Fusion Ignition and High Yield Campaign	436,915	457,915	481,548

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Inertial Confinement Fusion Ignition and High Yield Campaign:				
Ignition	110,222	74,410	71,479	73,886
Support of Other Stockpile Programs	17,240	39,637	35,522	49,154
NIF Diagnostics, Cryogenics, and Experimental Support	74,104	83,878	82,921	76,117
Pulsed Power Inertial Confinement Fusion	5,000	5,000	5,000	5,000
Joint Program in High Energy Density Laboratory Plasmas	4,000	4,000	4,000	4,000
Facility Operations and Target Production	269,885	268,672	272,072	276,655
Total, Inertial Confinement Fusion Ignition and High Yield Campaign	480,451	475,597	470,994	484,812

ADVANCED SIMULATION AND COMPUTING CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Advanced Simulation and Computing Campaign:			
Integrated Codes	138,917	140,882	165,947
Physics and Engineering Models	49,284	61,189	62,798
Verification and Validation	50,184	50,882	54,781
Computational Systems and Software Environment	156,733	159,022	175,833
Facility Operations and User Support	161,007	155,650	156,389
Total, Advanced Simulation and Computing Campaign	556,125	567,625	615,748

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Advanced Simulation and Computing Campaign:				
Integrated Codes	167,327	163,752	163,887	168,143
Physics and Engineering Models	66,541	65,019	64,626	66,438
Verification and Validation	54,168	52,879	52,300	53,835
Computational Systems and Software Environment	175,833	175,833	175,833	180,912
Facility Operations and User Support	159,071	158,774	158,774	163,806
Total, Advanced Simulation and Computing Cam- paign	622,940	616,257	615,420	633,134

READINESS CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Readiness Campaign:			
Stockpile Readiness	27,869	5,746	18,941
High Explosives and Weapon Operations	8,581	4,608	3,000
Nonnuclear Readiness	32,545	12,701	21,864
Tritium Readiness	70,409	68,246	50,187
Advanced Design and Production Technologies	21,216	8,699	18,100
Total, Readiness Campaign	160,620	100,000	112,092

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Readiness Campaign:				
Tritium Readiness	81,697	70,747	69,854	72,584
Total, Readiness Campaign	81,697	70,747	69,854	72,584

READINESS IN TECHNICAL BASE AND FACILITIES—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Readiness in Technical Base and Facilities:			
Operations of Facilities:			
Kansas City Plant	89,871	156,056	186,102
Lawrence Livermore National Laboratory	82,605	86,670	80,106
Los Alamos National Laboratory	289,169	311,776	318,464
Nevada Test Site	92,203	79,583	80,077
Pantex	101,230	131,602	121,254
Sandia National Laboratory	123,992	104,133	117,369
Savannah River Site	92,762	128,580	92,722
Y-12 National Security Complex	235,397	229,774	220,927
Institutional Site Support	56,102	120,129	40,970
Subtotal, Operations of Facilities	1,163,331	1,348,303	1,257,991
Program Readiness	71,626	73,021	69,309
Material Recycle and Recovery	70,334	69,542	70,429

READINESS IN TECHNICAL BASE AND FACILITIES—FUNDING PROFILE BY SUBPROGRAM—
Continued

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Containers	22,696	23,392	27,992
Storage	31,951	24,708	24,233
Subtotal, Operations and Maintenance	1,359,938	1,538,966	1,449,954
Construction	314,468	303,904	399,016
Total, Readiness in Technical Base and Facilities	1,674,406	1,842,870	1,848,970

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Readiness in Technical Base and Facilities:				
Operations of Facilities	1,178,512	1,129,208	1,061,276	1,097,791
Program Readiness	48,492	47,998	63,541	65,713
Material Recycle and Recovery	61,678	63,673	63,386	65,554
Containers	22,043	23,100	22,971	23,757
Storage	19,535	21,425	21,942	22,693
Subtotal, Operations and Maintenance	1,330,260	1,285,404	1,233,116	1,275,508
Construction	542,286	555,921	693,452	722,256
Total, Readiness in Technical Base and Facilities	1,872,546	1,841,325	1,926,568	1,997,764

SECURE TRANSPORTATION ASSET—OVERVIEW FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Secure Transportation Asset (STA):			
Operations and Equipment	127,701	138,772	149,018
Program Direction	86,738	96,143	99,027
Total, Secure Transportation Asset	214,439	234,915	248,045

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Operations and Equipment:				
Operations and Equipment	149,274	144,398	144,660	150,066
Program Direction	101,998	105,058	108,209	111,455
Total, Operations and Equipment	251,272	249,456	252,869	261,521

SECURE TRANSPORTATION ASSET—OPERATIONS AND EQUIPMENT—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Operations and Equipment:			
Mission Capacity	70,107	75,038	84,010
Security/Safety Capability	20,617	26,472	27,001
Infrastructure and C5 Systems	25,978	23,217	23,681
Program Management	10,999	14,045	14,326
Total, Operations and Equipment	127,701	138,772	149,018

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Operations and Equipment:				
Mission Capacity	82,966	76,764	75,672	79,699
Security/Safety Capability	27,541	28,092	28,654	29,227
Infrastructure and C5 Systems	24,155	24,638	25,131	25,633
Program Management	14,612	14,904	15,203	15,507
Total, Operations and Equipment	149,274	144,398	144,660	150,066

SECURE TRANSPORTATION ASSET—PROGRAM DIRECTION—FUNDING PROFILE BY SUBPROGRAM

[Dollars in thousands]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Program Direction:			
Salaries and Benefits	\$75,226	\$81,225	\$83,311
Travel	\$10,188	\$411,331	\$7,746
Other Related Expenses	\$1,324	\$3,587	\$7,970
Total, Program Direction	\$86,738	\$96,143	\$99,027
Total, Full Time Equivalents	570	647	637

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[Dollars in thousands]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Program Direction:				
Salaries and Benefits	\$85,781	\$88,323	\$90,943	\$93,641
Travel	\$7,980	\$8,218	\$8,465	\$8,719
Other Related Expenses	\$8,237	\$8,517	\$8,801	\$9,095
Total, Program Direction	\$101,998	\$105,058	\$108,209	\$111,455
Total, Full Time Equivalents	637	637	637	637

NUCLEAR COUNTERTERRORISM INCIDENT RESPONSE—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Nuclear Counterterrorism Incident Response (Homeland Security): ¹			
Emergency Response (Homeland Security) ¹	132,918	139,048	134,092
National Technical Nuclear Forensics (Homeland Security) ¹	12,557	10,217	11,698
Emergency Management (Homeland Security) ¹	7,428	7,726	7,494
Operations Support (Homeland Security) ¹	8,207	8,536	8,675
International Emergency Management and Cooperation	4,515	7,181	7,139
Nuclear Counterterrorism (Homeland Security) ¹	49,653	49,228	64,036
Total, Nuclear Counterterrorism Incident Response	215,278	221,936	233,134

¹ Office of Management and Budget (OMB) Homeland Security designations.

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Nuclear Counterterrorism Incident Response:				
Emergency Response (Homeland Security) ¹	137,715	138,359	139,504	141,107
National Technical Nuclear Forensics (Homeland Security) ¹	11,589	11,694	11,577	11,828
Emergency Management (Homeland Security) ¹	7,129	6,629	6,505	6,694
Operations Support (Homeland Security) ¹	8,691	8,799	8,749	9,000
International Emergency Management and Cooperation	7,129	7,139	7,032	7,275
Nuclear Counterterrorism (Homeland Security) ¹	50,661	49,888	61,933	62,082
Total, Nuclear Counterterrorism Incident Response	222,914	222,508	235,300	237,986

¹ Office of Management and Budget (OMB) Homeland Security designations.

FACILITIES AND INFRASTRUCTURE RECAPITALIZATION PROGRAM—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Approp- riation	Fiscal Year 2011 Request
Facilities and Infrastructure Recapitalization Program:			
Operations and Maintenance (O&M):			
Recapitalization	69,226	69,377	79,600
Infrastructure Planning	10,324	8,982	9,400
Facility Disposition .....	.....	5,600	5,000
Subtotal, Operations and Maintenance (O&M)	79,550	83,959	94,000
Construction	67,899	9,963	.....
Total, Facilities and Infrastructure Recapitalization Program	147,449	93,922	94,000

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Facilities and Infrastructure Recapitalization Program:				
Operations and Maintenance (O&M):				
Recapitalization	79,600	86,600	.....	.....
Infrastructure Planning	9,400	2,400	.....	.....

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM—Continued

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Facility Disposition	5,000	5,000	.....	.....
Subtotal, Operations and Maintenance (O&M)	94,000	94,000	.....	.....
Construction .....	.....	.....	.....	.....
Total, Facilities and Infrastructure Recapitalization Program	94,000	94,000	.....	.....

SITE STEWARDSHIP—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Site Stewardship:			
Operations and Maintenance	61,288	90,478
Construction	15,000
Total, Site Stewardship	61,288	105,478

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Site Stewardship:				
Operations and Maintenance	101,929	103,536	174,071	205,802
Construction .....	.....	.....	.....	.....
Total, Site Stewardship	101,929	103,536	174,071	205,802

ENVIRONMENTAL PROJECTS AND OPERATIONS—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Environmental Projects and Operations:			
Long-Term Stewardship	38,596	.....	.....
Total, Environmental Projects and Operations	38,596	.....	.....

SAFEGUARDS AND SECURITY—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Safeguards and Security (S&S):			
Defense Nuclear Security (Homeland Security):			
Operations and Maintenance	689,510	720,044	667,954
Construction	45,698	49,000	52,000
Total, Defense Nuclear Security	735,208	769,044	719,954

SAFEGUARDS AND SECURITY—FUNDING PROFILE BY SUBPROGRAM—Continued

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Cyber Security (Homeland Security)	121,286	122,511	124,345
Total, Safeguards and Security	856,494	891,555	844,299

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Safeguards and Security (S&S):				
Defense Nuclear Security (Homeland Security):				
Operations and Maintenance	675,229	672,344	671,671	681,259
Construction	55,715	57,265	57,254	59,390
Total, Defense Nuclear Security	730,944	729,609	728,925	740,649
Cyber Security (Homeland Security)	126,046	125,822	125,707	127,189
Total, Safeguards and Security	856,990	855,431	854,632	867,838

DEFENSE NUCLEAR SECURITY—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Defense Nuclear Security:			
Operations and Maintenance (Homeland Security):			
Protective Forces	418,694	453,000	414,166
Physical Security Systems	77,245	74,000	73,794
Transportation	420		
Information Security	25,880	25,300	25,943
Personnel Security	31,263	30,600	30,913
Materials Control and Accountability	35,929	35,200	35,602
Program Management	71,364	83,944	80,311
Technology Deployment, Physical Security	9,431	8,000	7,225
Graded Security Protection Policy (formerly DBT)	19,284	10,000	
Total, Operations and Maintenance (Homeland Security) ..	689,510	720,044	667,954
Construction (Homeland Security)	45,698	49,000	52,000
Total, Defense Nuclear Security	735,208	769,044	719,954

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Defense Nuclear Security:				
Operations and Maintenance (Homeland Security):				
Protective Forces	422,221	414,432	414,617	421,346
Physical Security Systems	71,405	73,987	71,165	72,297
Information Security	26,202	26,464	26,729	26,996
Personnel Security	31,222	31,534	31,849	32,167
Materials Control and Accountability	35,958	36,318	36,681	37,048

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM—Continued

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Program Management	80,924	82,239	83,186	83,887
Technology Deployment, Physical Security	7,297	7,370	7,444	7,518
Total, Operations and Maintenance (Homeland Security)	675,229	672,344	671,671	681,259
Construction (Homeland Security)	55,715	57,265	57,254	59,390
Total, Defense Nuclear Security	730,944	729,609	728,925	740,649

CYBER SECURITY—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Cyber Security (Homeland Security):			
Infrastructure Program	93,776	99,011	97,849
Enterprise Secure Computing	25,500	21,500	21,500
Technology Application Development	2,010	2,000	4,996
Total, Cyber Security (Homeland Security)	121,286	122,511	124,345

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Cyber Security (Homeland Security):				
Infrastructure Program	99,550	99,326	98,211	99,693
Enterprise Secure Computing	21,500	21,500	22,500	22,500
Technology Application Development	4,996	4,996	4,996	4,996
Total, Cyber Security (Homeland Security)	126,046	125,822	125,707	127,189

SCIENCE, TECHNOLOGY AND ENGINEERING CAPABILITY—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Operations and Maintenance	30,000	.....	20,000
Total, Science, Technology and Engineering Capability	30,000	.....	20,000

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Operations and Maintenance
Total, Science, Technology and Engineering Capabil- ity

WEAPONS ACTIVITIES—CONGRESSIONALLY DIRECTED PROJECTS—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Congressionally Directed Projects	22,836	3,000	.....

DEFENSE NUCLEAR NONPROLIFERATION—OVERVIEW—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Defense Nuclear Nonproliferation:			
Nonproliferation and Verification Research and Development	356,281	317,300	351,568
Nonproliferation and International Security	150,000	187,202	155,930
International Nuclear Materials Protection and Cooperation	¹ 460,592	572,050	590,118
Elimination of Weapons-Grade Plutonium Production	141,299	24,507	.....
Fissile Materials Disposition	41,774	701,900	1,030,713
Global Threat Reduction Initiative	² 404,640	333,500	558,838
Congressional Directed Projects	1,903	250	.....
Subtotal, Defense Nuclear Nonproliferation	1,556,489	2,136,709	2,687,167
Use of Prior Year Balances	- 11,418	.....	.....
Total, Defense Nuclear Nonproliferation	1,545,071	2,136,709	2,687,167

¹ Fiscal year 2009 amount includes international contributions of \$4,067,065 from Government of Canada, \$387,335 from New Zealand, \$837,600 from Norway, and \$300,000 from South Korea.

² Fiscal year 2009 amount includes international contributions of \$3,918,000 from the Government of Canada, and \$5,722,212 from the United Kingdom of Great Britain and Northern Ireland.

NOTES.—Fiscal year 2009 funds appropriated in Other Defense Activities for the Mixed Oxide Fuel Fabrication Facility, and in Weapons Activities for the Waste Solidification Building and Pit Disassembly and Conversion Facility (fiscal year 2009 and fiscal year 2010) are not reflected in the above table.

Public Law Authorization

Energy and Water and Related Agencies Appropriations Act, 2010 (Public Law 111–85).

National Nuclear Security Administration Act, (Public Law 106–65), as amended.

National Defense Authorization Act for Fiscal Year 2010 (Public Law 111–84).

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Defense Nuclear Nonproliferation:				
Nonproliferation and Verification Research and Development	315,941	317,558	328,194	351,145
Nonproliferation and International Security	161,083	165,275	169,861	181,741
International Nuclear Materials Protection and Cooperation	570,798	561,790	558,492	623,670
Fissile Materials Disposition	859,375	1,010,642	789,558	743,600
Global Threat Reduction Initiative	599,994	659,926	987,138	1,056,172
Total, Defense Nuclear Nonproliferation	2,507,191	2,715,191	2,833,243	2,956,328

NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Nonproliferation and Verification R&D:			
Operations and Maintenance (O&M):			
Proliferation Detection	195,400	181,839	225,004
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]
Nuclear Detonation Detection	142,421	135,461	126,564
Subtotal, O&M	337,821	317,300	351,568
Construction	18,460		
Total, Nonproliferation and Verification R&D	356,281	317,300	351,568

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Nonproliferation and Verification R&D:				
Operations and Maintenance:				
Proliferation Detection (PD)	182,614	183,549	189,696	202,962
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]	[50,000]
Nuclear Detonation Detection	133,327	134,009	138,498	148,183
Total, Nonproliferation and Verification R&D	315,941	317,558	328,194	351,145

NONPROLIFERATION AND INTERNATIONAL SECURITY—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Nonproliferation and International Security:			
Dismantlement and Transparency	47,529	72,763	49,207
Global Security Engagement and Cooperation	44,076	50,708	47,289
International Regimes and Agreements	40,793	42,703	39,824
Treaties and Agreements	17,602	21,028	19,610
Total, Nonproliferation and International Security	150,000	187,202	155,930

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Nonproliferation and International Security:				
Dismantlement and Transparency	50,832	52,155	53,602	57,351
Global Security Engagement and Cooperation	48,852	50,124	51,514	55,117
International Regimes and Agreements	41,141	42,210	43,383	46,417
Treaties and Agreements	20,258	20,786	21,362	22,856
Total, Nonproliferation and International Security	161,083	165,275	169,861	181,741

INTERNATIONAL NUCLEAR MATERIALS PROTECTION AND COOPERATION—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
International Nuclear Materials Protection and Cooperation:			
Navy Complex	30,316	33,880	34,322
Strategic Rocket Forces/12th Main Directorate	51,767	48,646	51,359
Rosatom Weapons Complex	76,070	71,517	105,318
Civilian Nuclear Sites	45,542	63,481	59,027
Material Consolidation and Conversion	21,560	13,611	13,867
National Programs and Sustainability	54,901	68,469	60,928
Second Line of Defense	174,844	272,446	265,297
International Contributions	¹ 5,592	.....	.....
Total, International Nuclear Materials Protection and Cooperation	460,592	572,050	590,118

¹ Fiscal year 2009 amount includes international contributions of \$4,067,065 from Government of Canada, \$387,335 from New Zealand, \$837,600 from Norway, and \$300,000 from South Korea.

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
International Nuclear Materials Protection and Cooperation:				
Navy Complex	31,764	.....	.....	.....
Strategic Rocket Forces/12th Main Directorate	37,830	.....	.....	.....
Rosatom Weapons Complex	52,000	.....	.....	.....
Civilian Nuclear Sites	18,502	.....	.....	.....
Material Consolidation and Conversion	14,306	14,627	14,627	16,433
National Programs and Sustainability	61,967	39,006	39,006	43,623
Second Line of Defense	354,429	508,157	504,859	563,614
International Contributions .....	.....	.....	.....	.....
Total, International Nuclear Materials Protection and Cooperation	570,798	561,790	558,492	623,670

ELIMINATION OF WEAPONS-GRADE PLUTONIUM PRODUCTION—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Approp- riation	Fiscal Year 2011 Request
Elimination of Weapons-Grade Plutonium Production (EWGPP):			
Zheleznogorsk Plutonium Production Elimination (ZPPEP)	139,282	22,507	.....
Crosscutting and Technical Support Activities	2,017	2,000	.....
Total, Elimination of Weapons-Grade Plutonium Production (EWGPP)	141,299	24,507	.....

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Elimination of Weapons-Grade Plutonium Production

FISSILE MATERIALS DISPOSITION—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Current Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Fissile Materials Disposition (FMD):			
U.S. Surplus Fissile Materials Disposition:			
Operations and Maintenance (O&M):			
U.S. Plutonium Disposition		90,896	278,940
U.S. Uranium Disposition	39,274	34,691	25,985
Supporting Activities	1,500	1,075	.....
Subtotal, O&M	40,774	126,662	304,925
Construction .....	.....	574,238	612,788
Total, U.S. Surplus FMD	40,774	700,900	917,713
Russian Surplus FMD:			
Russian Materials Disposition	1,000	1,000	113,000
Total, Fissile Materials Disposition	41,774	701,900	1,030,713

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Fissile Materials Disposition:				
U.S. Surplus Fissile Materials Disposition (O&M)	302,276	482,185	478,897	459,827
Construction	556,099	527,457	309,661	282,773
Russian Surplus Fissile Materials Disposition	1,000	1,000	1,000	1,000
Total, Fissile Materials Disposition	859,375	1,010,642	789,558	743,600

GLOBAL THREAT REDUCTION INITIATIVE (GTRI)—FUNDING PROFILE BY SUBPROGRAM ¹

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Global Threat Reduction Initiative:			
Highly Enriched Uranium (HEU) Reactor Conversion	76,706	102,772	119,000
Nuclear and Radiological Material Removal:			
Russian-Origin Nuclear Material Removal	123,083	94,167	145,191
U.S.-Origin Nuclear Material Removal	8,331	9,889	16,500
Gap Nuclear Material Removal	4,982	9,111	108,000
Emerging Threats Nuclear Material Removal	7,600	5,556	16,000
International Radiological Material Removal	21,702	8,333	45,000
Domestic Radiological Material Removal	17,063	17,778	25,000
Subtotal, Nuclear and Radiological Material Removal	182,761	144,834	355,691
Nuclear and Radiological Material Protection:			
BN-350 Nuclear Material Protection	50,977	9,109	2,000
International Material Protection	42,909	41,463	57,000
Domestic Material Protection	41,647	35,322	25,147
Subtotal, Nuclear and Radiological Material Protection	135,533	85,894	84,147
Total, Global Threat Reduction Initiative (appropriation)	395,000	333,500	558,838

GLOBAL THREAT REDUCTION INITIATIVE (GTRI)—FUNDING PROFILE BY SUBPROGRAM ¹—
Continued

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Funds from International Contributions	9,640	.....	.....
Total, Global Threat Reduction Initiative Funds Available	404,640	333,500	558,838

¹ Fiscal year 2009 amount includes international contributions of \$3,918,000 from the Government of Canada, and \$5,722,212 from the United Kingdom of Great Britain and Northern Ireland.

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Global Threat Reduction Initiative:				
HEU Reactor Conversion	176,000	210,000	245,000	293,000
Nuclear and Radiological Material Removal:				
Russian-Origin Nuclear Material Removal	96,000	70,000	82,000	83,000
U.S.-Origin Nuclear Material Removal	1,000	3,000	1,000	1,000
Gap Nuclear Material Removal	22,000	16,000	27,000	1,000
Emerging Threats Nuclear Material Removal	16,000	16,000	194,000	188,000
International Radiological Material Removal	44,000	39,000	10,000	10,000
Domestic Radiological Material Removal	31,000	31,000	33,000	34,000
Subtotal, Nuclear and Radiological Material Removal	210,000	175,000	347,000	317,000
Nuclear and Radiological Material Protection:				
BN-350 Nuclear Material Protection	2,000	.....	.....	.....
International Material Protection	100,000	125,000	130,000	143,000
Domestic Material Protection	111,994	149,926	265,138	303,172
Subtotal, Nuclear and Radiological Material Protection	213,994	274,926	395,138	446,172
Total, Global Threat Reduction Initiative	599,994	659,926	987,138	1,056,172

CONGRESSIONALLY DIRECTED PROJECTS—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Congressionally Directed Projects	1,903	250	.....

NAVAL REACTORS—OVERVIEW—APPROPRIATION SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal Year 2009 Actual Appropriation	Fiscal Year 2010 Current Appropriation	Fiscal Year 2011 Request
Naval Reactors Development:			
Operations and Maintenance (O&M)	771,600	877,533	997,886
Program Direction	34,454	36,800	40,000
Construction	22,000	30,800	32,600
Total, Naval Reactors Development	828,054	945,133	1,070,486

Public Law Authorizations

Public Law 83–703, “Atomic Energy Act of 1954” “Executive Order 12344” (42 U.S.C. 7158), “Naval Nuclear Propulsion Program”.

Public Law 107–107, “National Defense Authorizations Act of 2002”, title 32, “National Nuclear Security Administration”.

John Warner National Defense Authorization Act for fiscal year 2007, (Public Law 109–364).

Fiscal Year 2008 Consolidated Appropriations Act (Public Law 110–161).

National Nuclear Security Administration Act, (Public Law 106–65), as amended.

Fiscal Year 2009 Consolidated Appropriations Act (Public Law 111–8).

Fiscal Year 2010 Energy and Water and Related Agencies Appropriations Act (Public Law 111–85).

OUT-YEAR APPROPRIATION SUMMARY BY PROGRAM

[In thousands dollars]

	Fiscal Year 2012	Fiscal Year 2013	Fiscal Year 2014	Fiscal Year 2015
Naval Reactors Development:				
Operations and Maintenance	1,018,634	1,102,978	1,177,817	1,240,430
Program Direction	41,200	42,400	43,700	45,000
Construction	39,900	25,800	4,500	25,100
Total, Naval Reactors Development	1,099,734	1,171,178	1,226,017	1,310,530

Senator DORGAN. Mr. D’Agostino, thank you very much. Would you like to identify, for the record, those who are accompanying you today?

Mr. D’AGOSTINO. Yes, sir.

Mr. Steven Black, to my right, is going to be representing the nonproliferation program. Mr. Black has been the chief operating officer in—we call the NA–20 organization, and has been—essentially, has very deep knowledge of all levels of the program. And we’re fortunate to be with him.

Admiral Kirk Donald, to my left, runs the naval reactors program; for many years, has demonstrated significant success in implementing these programs. It’s really, quite an impressive organization.

And Brigadier General Gary Harencak, to my left, runs the defense programs activities. General Harencak joined our operation about a year ago—little less than a year ago. It’s a great find for us, from the Air Force. It’s the Air Force’s demonstration of their commitment to these types of programs.

5 YEAR BUDGET ESTIMATE DETAILS

Senator DORGAN. Well, thank you very much for your testimony.

Let me ask a couple of questions of the type that I raised and Senator Bennett raised, as well. We have a 5-year out-year budget from NNSA that shows an average of about \$300 million per year increase for NNSA needs. But, my understanding is that that budget doesn’t include the current \$3 billion estimated cost of the Chemistry and Metallurgy Research Facility replacement, at Los Alamos; the Uranium Processing Facility, at Y–12—that’s expected to cost \$1.4 to \$3.5 billion; the Pit Disassembly and Conversion Facility at Savannah River—that’s to cost between \$2.4 and \$3.2 billion.

My understanding is the cost estimates are not completed on those buildings, so they are not a part of your 5 year estimate. Is that right? Will the subcommittee expect to see higher cost estimates and more requirements for those three buildings?

Mr. D'AGOSTINO. The resources for the design work are in our FYNSP. We feel—we're limited, in providing a 5 year plan, sir. Most of these facilities will take, in many cases, 9 or 10 years to build. What we've looked at in the Department—to address the concerns, raised by you sir, as well as the Government Accountability Office, which has been very clear on how we want to move forward—is, it's important to spend more time up front in understanding what you're going to design before you commit to a cost—you know, what we call a "critical decision 2," which is a final cost, scope, and schedule that we say we sign our names up to.

So, what we have in the first few years of this future-year—5-year national security plan are our projections on what the out years might be. The real numbers are going to start coming in, in the years 2015, 2016, 2017, and 2018, as we get into the heavy construction pieces of those particular projects. So, in order to address the project management concern, which is a very valid concern, the Deputy Secretary recently issued a revised project management policy to address those specific points.

Senator DORGAN. I'm sorry to interrupt you, but let me just ask the admiral a question that is similar. We're talking about three facilities, each of which are going to cost probably close to a couple billion dollars each, rather \$3 billion, potentially; \$2 billion; \$2.5 billion. So, three very large facilities that will be built over a long period of time.

Mr. D'AGOSTINO. Right.

Senator DORGAN. At the same time, my understanding is, that we're going to do three things, we're going to have three projects. One is developing a new reactor core for the Ohio-class submarine; refueling the prototype reactor in New York; and new spent-fuel facilities in Idaho. The first, I think is going to cost, I'm told, up to \$1.5 billion; the second, \$1.3 billion; the third, probably \$1.3 or \$1.4 billion. So, you're talking about three very large programs, here; three very large facilities. Then, I think we asked the question earlier, can you effectively do all these in reasonably the same period of time, effectively manage them, and, especially, control costs?

Mr. D'AGOSTINO. I believe the answer is, firmly yes, we can do that. We can do it because—for a number of reasons. In many cases, these are activities that have started already. They won't be starting from a zero stop and then going to full steam ahead. Well, all the facilities on the weapons side and operations side have started, already.

What we've realized on large projects is spending the right amount of money early on the design allows us to lock in and have a good understanding of the actual costs before we begin construction. So, we do—our 5 year plan does have the resources to do the design work that we think is absolutely critical. The last 2 years of the 5 year plan, for example, the years 2014 and 2015, show bump-ups of about \$300 million in each of those years to address when we start to actually expect doing construction work, because we think that's when the dollars will be needed.

But, the important thing is that we haven't yet committed to the actual design cost schedule yet, because we haven't finished our design work. And one of the commitments in our policies is to do the design early. Once you have the design early—and we have authorization and appropriations to proceed—is to make sure that the President's request requests the right amount of money in each year—not try to shortchange those things. In the past, we've gotten into trouble, because it always seemed like a convenient pool to go to, to go solve other problems that come up throughout the year. And the commitment is that once the cost, scope, and schedule is understood on the project, we fund it.

I'd like to turn to Admiral Donald, who can talk a little bit about the naval reactors piece.

Admiral DONALD. Sure. Thank you very much. It's good to be here and thank you for the opportunity to appear before the subcommittee.

There are two points I would make about our ability to execute these significant projects. There are two that involve reactor design—the reactor plant design for the replacement for the Ohio-class, and then the reactor design that goes into the prototype up in New York for training and—or research and development. The third one, while not a reactor design, is similar, in the sense that it's a complex nuclear project that we would be undertaking.

The first point I would make to you, sir, is that we have a history of designing reactor plants. This would be the 30th—over the 30th reactor design that naval reactors has made. We've made over two dozen reactor plant designs that include the entire propulsion plant, over the history of the program, the most recent being the design of the reactor plant for the Gerald R. Ford class of aircraft carrier, which we're on schedule, all of our components are being delivered or are in delivery to the shipyard right now, on time, and on the budget that we had demonstrated, or we had planned for in the past.

These projects are very similar, in that regard, so I think—I am confident that we know how to do this. We understand what the difficulties are, what the challenges are, and we've carefully mapped those out.

The key, however, as we've learned, to success in these is, you have to get the design matured, as Mr. D'Agostino pointed out. History has shown that if you can get designs complete to about 40 to 50 percent, you have a very good opportunity—a very good chance of delivering on time and on budget. That's what we demonstrated in the Virginia-class submarine program. That's the target that we're going for now for these projects. And the key to that is the early upfront funding so that we can do the design, the concept development, and be prepared to start construction.

ENSURING CONTRACT COMPETITION

Senator DORGAN. All right. Last year, we expressed some concern in this subcommittee about the sole-source awarding of target production for the NIF and other laser facilities, which we indicated we felt was inconsistent with policy guidelines. With the cost of target production expected to increase significantly, competition will be needed to lower costs and to spur innovation. We believe the

NNSA's recently released request for information to award a new contract is more oriented toward one contractor. We've also had complaints about that, as well.

To what extent, if you can tell me, Mr. D'Agostino, does the request for information preclude multiple vendors from effectively competing for the contract?

Mr. D'AGOSTINO. Mr. Chairman, we're very much interested in competition across a broad range of activities. I'm not aware of any complaints, but I'd be happy to make sure we take a look at that.

If our request for information appears to be focused to a single contractor, that was an oversight on our part. We'll have to—I'll take a look into that and get back to the subcommittee.

Senator DORGAN. All right because it seems to me, especially on these kinds of projects, the more you can get contractors involved in competition, the lower you're going to experience pricing on these major contracts.

JASON'S REPORT

Mr. D'AGOSTINO. Yes, sir.

Senator DORGAN. Let me just ask, on the issue of nuclear weapons design, my understanding is that the plan is to modify the design of nuclear weapons. Reconcile that, if you would, that is the need for changes, with JASON's conclusion, in its 2009 report, that the lifetimes of today's nuclear warheads could be extended for decades without significant changes to their design and without any significant deterioration.

Mr. D'AGOSTINO. Right.

Senator DORGAN. So, can you tell us how you see the JASON's report—related to the discussions about changing design?

Mr. D'AGOSTINO. Absolutely, and at the end, if General Harencak wants to join, if it's okay—

Senator DORGAN. All right.

Mr. D'AGOSTINO [continuing]. We'll ask him to do it. I'll—I can't start off on that.

The JASON's report, the unclassified executive summary, basically talked about: If we don't want to improve the safety, if we don't want to improve the security, if we don't want to improve the reliability, and just keeps things the way they are and have cold war nuclear weapons, they felt, "just keep making things the way you used to make them."

There's a couple—okay. I'll take that statement.

Senator FEINSTEIN. That's not what it says.

Mr. D'AGOSTINO. It's—it talks about—

Senator FEINSTEIN. I have it in front of me.

Mr. D'AGOSTINO [continuing]. We can maintain, out into the future—

Senator FEINSTEIN. Excuse me.

Mr. D'AGOSTINO. Yes. Well, I don't have it in front of me right now, but if it says we can—I think it says, we can maintain, out into the future, using current life-extension approaches—

Senator FEINSTEIN. Yes.

Mr. D'AGOSTINO [continuing]. To safety, security—

Senator FEINSTEIN. That's right.

Mr. D'AGOSTINO. I think—what I'm interested in—there's a couple of problems with what I would say, to this high-level summary statement. One is, in many cases we can't make things the way we used to make them 30, 40 years ago. We just don't have the people; we don't have the processing techniques; many of the chemicals, and many of the materials that were used back then are prohibited from us for being able to use them; they have grave environmental damages and a very expensive infrastructure to be able to build that stuff. And so, I'm thinking about—decisions that get made now are going to have long-term impacts. These are, like, multi-decade facilities, so why would I want to, kind of, lock in the way we used to make things, when you know, we've progressed a lot in manufacturing approaches and we know a lot more about material, and the damage that beryllium does, and acetyl nitrate does. These are specific components.

Because those have costs, those have real costs, and they have long-term costs in dollars and in people—so, the approach is: In order to overcome the problem that we have in manufacturing, that there are different ways to do business. In order to address what I would say is 21st century security problems and 21st century safety approaches and not lock in the way we did safety, 30 years ago. There are features that we can put inside of these devices that will essentially make them safe.

And I think that would be my approach.

Senator DORGAN. I want to call on my colleagues in a moment, but my understanding was, in this discussion, which was RRW and this discussion had a number of components.

My understanding was that, for some while, there was a belief that pit degradation would mean that we would not have reliability of our nuclear deterrent, and therefore, a new class of nuclear weapons was required. The JASON's report, I think, among other things, has indicated, "No, that worry about degradation is not a concern." They believe that these nuclear weapons will be reliable, well out into the future.

And your point about designing safety, I understand.

Mr. D'AGOSTINO. Yes.

Senator DORGAN. But, my point is that the design changes originally were driven by a notion that you would have a degrading of the deterrent, and therefore, you had to replace them. I think the JASON's report is at odds with that. So, that was what I was trying to ask.

Mr. D'AGOSTINO. Okay.

Senator DORGAN. Let me call on my colleagues for questions.

Senator Bennett.

INDEPENDENT COST ESTIMATES

Senator BENNETT. Thank you very much.

Again, the chairman has talked about many of the things that I want to talk about. Let's discuss the whole issue of independent cost estimates.

Senator Alexander and I sent a letter to Secretary Chu last month to request the Department to obtain an independent cost estimate for the UPF Facility. He has not responded. Were you aware of that request?

Mr. D'AGOSTINO. Yes, sir, I'm aware of that request.

Senator BENNETT. And, as part of your reforms for contracts and project management, do you like the idea of independent cost estimates?

Mr. D'AGOSTINO. I absolutely love the idea. I think it's a great idea. We have to have it, and we have to do it much more frequently than we've done in the past. The policy the Deputy Secretary signed out last week on project management will require independent cost estimates more frequently, particularly at the critical decision points. So, before the Department would propose, in a budget request—that the President proposes in the budget request to Congress, on a critical decision—we would have an independent cost estimate, outside of my organization, to go validate that—you know, check independently that we have a good understanding of what the project's going to cost. There are a couple of other pieces to that, as well, that I'd be willing to describe, on project management.

Senator BENNETT. That means you'll have a solid cost estimate and schedule for each one of the multiple projects I described in my opening statement?

Mr. D'AGOSTINO. Yes, sir. We will—the key is, providing that solid cost estimate and schedule when we have the data to say we actually understand it. And, as Admiral Donald said, an example of this new policy will require much more significant design maturity than we've ever had in the past on these projects. What I'm looking at, in the NNSA for example, is to try to get as close as possible to 90 percent design maturity before we go off and authorize the construction of an activity, because then we will have a good idea—we will say, "We absolutely know what this design is." We've run down all of the technology readiness-level issues that typically come up and bite you if you don't—if you try to get started too soon. So, that's an element of this—

Senator BENNETT. Okay.

Mr. D'AGOSTINO [continuing]. Design maturity.

Senator BENNETT. Yes. I outlined the series of things that you're trying to do simultaneously—

Mr. D'AGOSTINO. Right.

Senator BENNETT [continuing]. Plus the two life-extension programs. Now, does the activity we need to do on the life extension programs hinge on the timely completion of the other four projects?

Mr. D'AGOSTINO. Two of the projects are nonproliferation projects. So, there's a clear answer to "no"—no, on that activity. The two life-extension programs in question are the W76 and the B61. The W76 work, General, is underway right now, we're into production mode on that, so it doesn't hinge on the completion of those projects. The B61 work is—particularly in the first few years, we're in the design maturity stage of the study, and then we'll come back and request authorization to actually proceed with the production. So, it doesn't hinge directly on that, because the idea is to get—when is the date for the B61, Gary?

General HARENCAK. By 2017, sir.

And, if I might—

Mr. D'AGOSTINO. Yes.

General HARENCAK [continuing]. Make a point about our life-extended—while we will have a time where there are dual life-extended—the way it's laid out is, the majority—overwhelming majority of the work will be done for the W76 as we start the core of the majority of the work of the B61. And then, that would be completed, should we need to do any other life-extensions time. So, while certainly on paper you're doing two life extensions, we've already de-conflicted the major facilities with that, our workforce and its plan to complete the W76 on time, on schedule, prior to the main heavy lifting that'd be required for the B61 in our production facilities.

PIT DISASSEMBLY AND CONVERSION FACILITY

Senator BENNETT. When do you anticipate requesting funds for the Pit Disassembly and Conversion Facility? And do you have any idea what the full cost is likely to be? Is that included in your 5-year budget, or is that something we can expect at some future time?

Mr. BLACK. The cost of the Pit Disassembly and Conversion Facility will be determined after we do some study. You may know that the Deputy Secretary decided, this past fall, to direct the Department to explore the possibility of combining the original stand-alone Pit Disassembly and Conversion Facility, which you've been discussing, with an existing project to deal with non-pit plutonium at Savannah River, that's currently run by the Office of Environmental Management, EM. So, we formed a working group with EM—an NNSA-EM working group—to evaluate what the possibilities are to combine these two projects. And part of the reason we're doing this is because the working group that was already stood up felt that there were a number of potential advantages to combining them; in particular, cost avoidance. We can't promise that, but initially it looks like we might be able to avoid the cost of building a new facility, because we would use the shell of the old K-Reactor, which currently exists, rather than building a new one. We would also avoid the costs of decontaminating and decommissioning a second category-1 facility at the end of the mission. And we might be able to smooth out such things as transportation costs, in terms of shipping pits from Pantex to Savannah River, and the like. So, there's a variety of ways that we might be able to avoid some costs and come in with a project that will actually satisfy both missions. But, we're not at CD1 yet. We don't have a cost estimate, and we expect that it will take 12 to 18 months. So, we would imagine, perhaps by the end of fiscal year 2011, we would be able to come in with a more reasonable—a more specific cost estimate and proposal.

Senator BENNETT. So, you have nothing in your 5 year budget now.

Mr. BLACK. Not right now, no. We have funds that were transferred from the Pit Disassembly and Conversion Facility that came over from another part of the budget, when it was reconfigured and realigned this year. And that funding will be used to continue work that would need to be done, irrespective of which path we take on the building. Whether we do the pit disassembly and conversion functions in the K Area, in the K-Reactor, or whether we do it in

a standalone facility that we build, we're still going to have to have glove boxes and hot cells and process equipment and the like. So, we're continuing to do the work and the long-lead procurement that would be required to do this mission. The mission has to be done. The question is whether we do it in this kind of a facility or that kind of facility. And, we feel that we can save some money in the long run if, as the Administrator said, we can do more complete design work over the next 12 to 18 months, and come back to you and to the Secretary with another estimate.

PROPOSED BUDGET ALLOCATIONS

Senator BENNETT. Okay. Now, in spite of all of the talk about the top line going up so dramatically, your request for day-to-day operations is down 7 percent, or \$1.3 billion. And can you talk about that—why there's the decrease in this area? Was this a tradeoff as you negotiated with OMB? I've negotiated with OMB. And, while administrations come and go, and change, OMB always remains the same, it seems to me, and always difficult when you're in a department or an agency and trying to deal with them. You're forced to make budget cuts to deal with the other activities that go in the areas we've talked about our support for? I know that's a very blunt question, and you—

Mr. D'AGOSTINO. Yes, sir.

Senator BENNETT [continuing]. Probably can't give me a blunt answer, but hint around at it as best you can.

Mr. D'AGOSTINO. Senator Bennett, every year, there will be changes to our budget. And in many cases the message that I've been working to drive over the past few years is we have to continue to look at ways to be more efficient. There are always ways, I believe, to be more efficient. I believe there continue to be ways to be more efficient. We have to do it, for a number of reasons; obviously, healthcare costs and benefits and things like that, which impact all of us, are part of that. The area that I'm most particularly concerned about is our—you know, what I call some of the physical infrastructure.

And I want—well, I have a meeting with the board of governors, actually, for two of our laboratories, Los Alamos and Livermore, this afternoon. I'm going to emphasize that this budget looks like great news, and it's important, because the country recognizes what's important, but we have to sharpen our pencils and reduce the fixed costs of doing our work in the enterprise. I believe there are more opportunities there. It certainly presents some challenges in maintenance of old facilities. I will readily admit that. You know, Brigadier General Harencak knows about this; he can probably add some detail to what I'm saying.

But, in general, I'm always going to push to drive efficiencies and try to get out of those facilities that we don't need and to take them down, because they do add to the fixed costs. I support the President's budget, of course. There will always be program managers in my organization that would like more, in order to do more. But, I try to look at it, not just—well, look at what's an increment from what we had last year, but what's in the base of what we had last year that we can try to get out of the program. In this program—or, the request that we have before us reflects some of my leanings

toward looking into the base of the program and trying to drive those costs down.

Will it cause problems out there? Yes, because change is always hard. I think there will be challenges. There'll be some folks out in the field that'll say, you know, "I need more and more—I need more." But, I think, in order to change from this kind of large cold war nuclear weapons complex, to an efficient, trim nuclear security enterprise that addresses not just weapons, but all these other areas, that's a necessity.

General, would you want to add?

General HARENCAK. Yes, sir. I—

Mr. D'AGOSTINO. Feel free to disagree with me, as well. So—

General HARENCAK. Well, sir.

Mr. D'AGOSTINO. I mean, you're testifying, not me.

General HARENCAK. I will not disagree with you. What I will say, though, is a caveat, perhaps—

Mr. D'AGOSTINO. Yes.

General HARENCAK [continuing]. That we still, even with this much needed budget increase—and, you know, last year, I believe, the testimony was—I told you that we could not sustain this enterprise. My best military advice was—I was new to the enterprise and—we could not sustain it with the type—with the number of resources we had. This goes a long way, obviously, to fixing those problems and doing the work that we have to do.

That being said, all budgets are going to have some areas that need, perhaps, still a little bit more attention. Facilities, is one, readiness and testing are some others.

We do believe, though, that we could internally—through the great efforts of Mr. D'Agostino and all the great Americans that work in this organization that are trying to turn this into a 21st century nuclear security enterprise—that we can make some internal adjustments, and we're working it. As we speak right now, our best—some of our best people are meeting to look at how we're going to, internally, specifically in defense programs, fix some of the short-term concerns that we have, specifically where it comes to some facilities.

We're confident that, as an enterprise, we're all going to work together, and we're going to say, "Hey, perhaps we can move some work here, we can move some money here to fix those."

So, I'm not going to sit here and tell you that we absolutely have no problems with this budget, that there's—you know, we got everything we need, but I will tell you we are aggressively managing those areas; we'll do what's necessary in the coming years to adjust and, when we come back to you, say, "Hey, perhaps now—in retrospect, we should've put x number to this facility, and we're going to adjust those." But, overall, as Mr. D'Agostino said, we are absolutely committed to making this organization more efficient, more responsive.

And, along those ways, since I have the opportunity, if you don't mind, I certainly agree that, in the past, our management of some projects has not been sterling. I mean, there's no other way around that. But, you have a team in place now that Mr. D'Agostino has put into place, that is—job one is to fix that. And, while certainly we could come up with things that we have done wrong in the past,

I also point to some things that we are doing extremely well now and—because we do have the capacity to learn, and we’re demonstrating that.

Certainly, the NIF project, this is an incredible success story. While, granted, it had problems in the past, long before our time here, it’s now incredibly well run and it’s making great, great positions.

KCRIMS is another example where we’ve taken, in a very complex thing, which is moving an in-operation plant to a much more efficient, much more cost effective, much more a green place, if you will. And we’re doing that superbly, I believe, because we’ve instituted a formal risk-management process, where we’re identifying the sources of risks, assessing those risks, but, more importantly, looking at how that affects overall project performance, and coming up with alternatives, real time, to fix it. And the KCRIMS program is a perfect example of contractors and Feds working together to actually produce a project on time and on schedule.

And so, I just offer that up to you, sir, that we are aggressively working on how to manage projects correctly.

NUCLEAR NONPROLIFERATION

Senator BENNETT. Okay. Thank you. Let me go, my last question, in the other direction. You want to secure all the vulnerable nuclear material around the world within 4 years and the budget increase has gone up 68 percent. This is one very heavy increase. And I’ve learned, in my business world, it’s tough to deal with a cut, and sometimes it’s even tougher to deal with an increase. And do you have the capacity to execute these funds in fiscal 2011, let alone significant increases of up to a billion dollars over the 5 year project plan?

Mr. BLACK. Sir, I would say that we do have the ability to get this mission done. If I may, the President laid out a very ambitious agenda for us last April, and again in the State of the Union Address. We’re not the only part of the solution of this problem, though; he said, “This is work for the world,” so we have international partners and we have interagency partners.

The portion of the task that we have essentially carved out for ourselves is the part that is consistent with our expertise, our authorities, and the budget that we believe we can manage. And so, we’ve requested the amount that we think we can use effectively. We are looking to commit all of the money, for the fiscal year 2011 work that we’ve requested in the budget, and we believe we can do it, for several reasons. One is we are much better staffed this year than we were at this time last year. Last year at this time, we had an 83-percent staffing rate, 17-percent vacancy rate. And we have dropped that now to a 5 percent vacancy rate. We have a lot more Feds on board. These are young, energetic people who have experience working overseas. They speak the language, they know the culture, and they’re certainly enthusiastic about the mission, and they know they have the support of both ends of Pennsylvania Avenue.

We’ve also put in place contracts and vehicles, such as the IDIQ, the indefinite delivery/indefinite quantity contract that supports our GTRI work, Global Threat Reduction Initiative work, and a

DICCE contract that will help us execute work in second line of defense. These two contract vehicles make it possible for us to contract out work overseas and greatly simplify what is otherwise a very complicated and long process to getting work done in other countries.

And we've done a very good job with our uncommitted balances, as well. The last 5 years, despite an increase in our overall non-proliferation budget, every year—our uncommitted balances have come down every single year. And the last 4 years, our balances have been under the 13-percent departmental threshold for uncosted balances. So, in particular, in the two programs that have to bear the greatest brunt of the burden for the 4-year plan, what we nominally call the 4-year plan, Global Threat Reduction and MPC&A, those two programs' uncommitted balances have come in under 9 percent. They're very well positioned to make good use of the funds that we are requesting. So, on balance, we feel that we're committed and able to execute this work very effectively.

Senator BENNETT. Thank you very much.

Senator FEINSTEIN. Thank you. Thank you very much.

Senator Bennett, good to see you again.

And, Mr. D'Agostino, good to see you again, I want to say that you have always been a straight-shooter with me. I very much appreciate that. You spent several times briefing me on the RRW. We did not see, with the same eyes, the same thing, and I found myself opposing the nuclear bunker buster, the advanced weapons concepts, the new plutonium pits, and the RRW. And I just want to say why.

I strongly believe that the United States of America should not be a nuclear proliferator. And when I sat down with Sid Drell on the bunker buster and on the laws of physics and what would happen if one of these things exploded, I couldn't believe that my country was proposing it. And so, I have begun to look very critically at weapons programs. And, of course, what I find is that Russia and the United States have a huge arsenal, which is in the process, through START and hopefully through the Comprehensive Test Ban Treaty, of being weaned down and better controlled over the years so that there is the kind of information, on both sides, about what the other side does that gives true mutual deterrence some real credibility.

I'd like to ask the clerk that the 4 pages of the September 9, 2009, JASON report be included in the record.

[The information follows:]

LIFETIME EXTENSION PROGRAM (LEP)—EXECUTIVE SUMMARY

1 EXECUTIVE SUMMARY

1.1 Study charge

This study of the Life Extension Program (LEP) for deployed U.S. nuclear weapons responds to the following charge.

“NNSA requests that JASON study LEP strategies for maintaining the U.S. nuclear deterrent in the absence of underground nuclear testing. This should include:

- “Study the certification challenges associated with changes, to include accumulation of changes, made to a warhead¹ during its life.
- “Compare the assessment and certification challenges of different LEP strategies ranging from refurbishment to replacement.
- “Study proposed methods to measure the evolution of risk due to multiple changes during warhead life and initiated in LEPs.
- “Study how NNSA can mitigate risks while maintaining a safe, secure and reliable nuclear deterrent. Comment on how the overall balance and structure of science, technology, engineering and production activities can be made to minimize future risk to the stockpile.
- “Study the accumulated risks and uncertainties of the current Life Extension Program strategy. As already identified by a previous JASON study, risk areas include:
 - “Linkage to UGT data,
 - “Manufacturing changes that may unavoidably result in differences from the as-tested devices,
 - “Increased surety² features, and
 - “Thresholds to failure.”

NNSA provided the following definitions:

“Refurbishment (current implementation of LEP).—Very generally, individual warhead components are replaced before they degrade with components of (nearly) identical design or that meet the same ‘form, fit, and function.’

“Warhead Component Reuse.—Refers specifically to the use of existing surplus pit and secondary components from other warhead types. Approach may permit limited warhead surety improvements and some increased margins.

“Warhead Replacement.—Some or all of the components of a warhead are replaced with modern design that are more easily manufacturable, provide increased warhead margins, forego no longer available or hazardous materials, improve safety, security and use control, and offer the potential for further overall stockpile reductions.”

1.2 Findings

JASON was asked to assess the impacts of changes to stockpile warheads incurred from aging and LEPs. In response:

- JASON finds no evidence that accumulation of changes incurred from aging and LEPs have increased risk to certification of today’s deployed nuclear warheads

This finding is a direct consequence of the excellent work of the people in the U.S. nuclear weapons complex supported and informed by the tools and methods developed through the Stockpile Stewardship program. Some aging issues have already been resolved. The others that have been identified can be resolved through LEP approaches similar to those employed to date. To maintain certification, military requirements for some stockpile warheads have been modified. The modifications are the result of improved understanding of original weapon performance, not because of aging or other changes. If desired, all but one of the original major performance requirements could also be met through LEP approaches similar to those employed to date.

- Lifetimes of today’s nuclear warheads could be extended for decades, with no anticipated loss in confidence, by using approaches similar to those employed in LEPs to date.

The report discusses details and challenges for each stockpile system.

For each warhead, decisions must be made about including additional surety features. Findings regarding surety features are:

- Further scientific research and engineering development is required for some proposed surety systems.
- Implementation of intrinsic³ surety features in today’s re-entry systems, using the technologies proposed to date, would require reuse or replacement LEP options.
- All proposed surety features for today’s air-carried systems could be implemented through reuse LEP options.
- Implementation of intrinsic surety features across the entire stockpile would require more than a decade to complete.

Concerning methods for assessing evolution of risk and assessing the effects of multiple changes to a weapon, we find that:

¹ In this study “warhead” refers to the nuclear explosive package and associated non-nuclear components.

² Surety encompasses safety, security and use control.

³ i.e. inside the nuclear explosive package.

- The basis for assessment and certification is linkage to underground test data, scientific understanding, and results from experiment.
- Quantification of Margins and Uncertainties (QMU) provides a suitable framework for assessment and certification.
- Increased scientific understanding enables reduced reliance on calibration, enhanced predictive capability, and improved quantification of margins and uncertainties.

Regarding certification challenges for LEP strategies ranging from refurbishment to replacement, we find that:

- Assessment and certification challenges depend on design details and associated margins and uncertainties, not simply on whether the LEP is primarily based on refurbishment, reuse, or replacement.

Concerning the overall balance and structure of science, technology, engineering and production activities, and how to mitigate risk to the stockpile, we find that:

- Certification of certain reuse or replacement options would require improved understanding of boost.
- Continued success of stockpile stewardship is threatened by lack of program stability, placing any LEP strategy at risk.

Surveillance of stockpile weapons is essential to stockpile stewardship. Inadequate surveillance would place the stockpile at risk. We find that:

- The surveillance program is becoming inadequate. Continued success of stockpile stewardship requires implementation of a revised surveillance program.

We conclude this section with a concern. All options for extending the life of the nuclear weapons stockpile rely on the continuing maintenance and renewal of expertise and capabilities in science, technology, engineering, and production unique to the nuclear weapons program. This will be the case regardless of whether future LEPs utilize refurbishment, reuse or replacement. The study team is concerned that this expertise is threatened by lack of program stability, perceived lack of mission importance, and degradation of the work environment.

1.3 Recommendations

Our recommendations are as follows:

- Determine the full potential of refurbishment, as exemplified by LEPs executed to date, for maintaining or improving the legacy stockpile.
- Quantify potential benefits and challenges of LEP strategies that may require reuse and replacement, to prepare for the possibility of future requirements such as reduced yield or enhanced surety.
- Strengthen and focus science programs to anticipate and meet potential challenges of future LEP options, including challenges associated with boost and surety science.
- Revise the surveillance program so that it meets immediate and future needs.
- Assess the benefits of surety technologies in the context of the nuclear weapons enterprise as a system, including technologies that can be employed in the near term.

NATIONAL LABORATORY PERSONNEL

Senator FEINSTEIN. And I want to just read, quickly, the finding, one of them, “JASON finds no evidence that accumulation of changes incurred from aging and LEPs’ lifetime extension have increased risk to certification of today’s deployed nuclear warheads.” And it goes on to say that, “The finding is a direct consequence of the excellent work of the people of the nuclear weapons complex, supported and informed by the tools and methods developed through the Stockpile Stewardship Program. Some aging issues have already been resolved. The others that have been identified can be resolved through LEP approaches similar to those employed to date.” And, it goes on, and then it makes the statement, categorically, “Lifetimes of today’s nuclear warheads could be extended for decades with no anticipated loss in confidence, by using approaches similar to those employed in LEPs to date.”

Now, what I’d like you to do, because you’ve raised the question several times with me, on beryllium and other things that are a hazard to the workforce, I’d like to get together with some of these

technical JASONs, with you, and really explore that one issue. None of us want to put workers in danger—

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN [continuing]. Of working around these warheads with chemicals in them that are highly toxic or are highly destructive. So, I want to understand that part of the issue better, if you would agree to that.

Mr. D'AGOSTINO. Absolutely, Senator. That would be great.

Senator FEINSTEIN. Thank you. The other thing that I've had occasion to do is visit the—some of the labs. And I would like to sit down with you on what you see the future mission of our labs to be—

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN [continuing]. And particularly now that the private sector is heavily involved, and with some considerable cost, that has forced the layoff of nuclear scientists in large numbers at Los Alamos and in the other labs, as well. So, if we could have that meeting, as well, I would appreciate it very much.

Mr. D'AGOSTINO. That would be great, Senator, I'd love to.

Senator FEINSTEIN. Okay.

Mr. D'AGOSTINO. Thank you.

NATIONAL IGNITION FACILITY

Senator FEINSTEIN. Now, I want to talk about the NIF, if I might, a little bit. I had the pleasure of going.

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN. And, as you know, it's a very impressive—

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN [continuing]. Plant. And the prototype for a fission nuclear powerplant was obviously there and was mentioned by people who were briefing me. It's also my understanding that the National Academy of Science, and the National Academy of Engineering, are conducting a study on inertial fusion energy.

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN. And the question is, whether this facility has the resources to provide the Academy with support and collateral information.

So, my question is this. I am told that the NIF will not have funding to operate the facility, 24/7, that it is being reduced to 16 hours a day, 5 days a week, which obviously limits the type of research it can do. So, here's the question. Do you believe that Lawrence Livermore would need additional funding to develop a baseline design for the technologies required to translate successful demonstration of ignition, on NIF, into a practical powerplant for supplying sustainable, carbon-free baseload electricity?

Mr. D'AGOSTINO. Our program does not have—first of all, we don't have a baseline level of funding to do that, to convert what could come out of the NIF Facility into a powerplant. That is not part of our budget. However, the key on NIF is, get to ignition first, because that is the most important thing, for a number of reasons you pointed out—potential energy benefit—there's a tremendous scientific benefit that that draws. I mean, being able to explore what happens to the materials under these extreme pressures and temperatures will be important, not just for weapons physics, but

also for basic science. And third, we believe it's critical to get to ignition in order to effectively be able to provide that proof test on the stockpile itself. It will allow us to solve some very specific problems, that we can describe in a classified setting.

But, the budget that we have before us doesn't have an aggressive inertial fusion energy component, as it's laid out before you. What we are doing, though, because—as we've committed to Congress for close to a decade now—is to conduct a credible ignition experiment this year. And “credible” means that we have no reason to believe it's not going to work. So, we're going to do that this year. And what we are working very closely on is that work plan once you achieve this, just, unbelievable scientific milestone—is both the scientific work that has to lay out—layer out on top of that to explore that energy pipeline that could potentially come out of this facility.

Senator FEINSTEIN. Is that included in the \$481 million—

Mr. D'AGOSTINO. The—

Senator FEINSTEIN [continuing]. Amount.

Mr. D'AGOSTINO. The \$481 million piece is to support the types of experiments—stockpile stewardship experiments that we need to have in order to make sure it addresses the science and the stockpile part of the NIF facility. There are components of that—

Senator FEINSTEIN. Is that a yes, or a no?

Mr. D'AGOSTINO. So, it's—no, it does not include inertial fusion energy—an aggressive inertial fusion energy program right now. What I will say is the Under Secretary for Science, Steven Koonin and I have talked about, you know, “This is a big deal, this National Ignition Facility. How do we look at this, as a department—not just as NNSA, but as a department—to address the energy piece of that?”

Senator FEINSTEIN. Yes, so was fusion energy.

Mr. D'AGOSTINO. Right. And the fusion energy sciences group in the basic science area—we do have an international commitment on the ITER project, out in France. But, we recognize that ignition changes lots of things; success at Livermore changes lots of things. So, we're going to be looking very closely at, how does the Department bring the Office of Science and the NNSA together in a way that can capitalize on this tremendous capability? We literally had the meeting—

Senator FEINSTEIN. So—

Mr. D'AGOSTINO [continuing]. Yesterday.

Senator FEINSTEIN [continuing]. What does that mean, in terms of this year and the budget? If I understand you, you're saying we can't do it under the \$481 million.

Mr. D'AGOSTINO. Well ma'am, no, no I think—you've got it—the \$481 million gets us to that first milestone.

Senator FEINSTEIN. The first test?

Mr. D'AGOSTINO. That gets us to the test and running experiments. Because there's no way that, you know, inertial fusion energy makes any sense at all if you can't get to ignition and you can't understand it better. And so, the \$481 million a year, plus whatever the year-by-year, goes out on that—I don't know if I have the specifics in front of me here—will actually operate that facility, will exercise our scientists, will prove ignition works, will address

stockpile stewardship problems. And in order to do the component that we're all interested in, as well, this energy piece, which I think has the great potential, we have to put together a program on top of that. But, to say we know what it's going to be, on—for energy purposes, right now, is—it's just way too early, because we haven't achieved ignition yet.

Senator FEINSTEIN. So, this cutback on hours for operation of the lab, how does that help achieve what you're trying to achieve?

Mr. D'AGOSTINO. I wasn't aware of a 24/7 versus a 5/16. I'm going to look into that—

Senator FEINSTEIN. Okay.

Mr. D'AGOSTINO [continuing]. Though, after this testimony—

Senator FEINSTEIN. Right.

Mr. D'AGOSTINO [continuing]. And try to get a better—I'll get an—

Senator FEINSTEIN. Could—

Mr. D'AGOSTINO [continuing]. Answer—

Senator FEINSTEIN [continuing]. You let me—

Mr. D'AGOSTINO [continuing]. To that.

Senator FEINSTEIN [continuing]. Know?

Mr. D'AGOSTINO. Absolutely.

Senator FEINSTEIN. I'd appreciate that—

Mr. D'AGOSTINO. Yes, ma'am.

Senator FEINSTEIN [continuing]. Very much. Let me see—

Mr. D'AGOSTINO. Yes. I'd like—

Senator FEINSTEIN [continuing]. What else—

Mr. D'AGOSTINO [continuing]. To do that.

Senator FEINSTEIN [continuing]. Because—when I went to the lab and actually looked and actually talked to people there, you know, the spark that's just turned on. I mean, "What if"—

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN [continuing]. "It's possible?"—

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN [continuing]. Is a very thrilling "what if."

Mr. D'AGOSTINO. Yes.

Senator FEINSTEIN. So—

Mr. D'AGOSTINO. Yes, ma'am.

Senator FEINSTEIN [continuing]. I think it's worth pursuing to see whether it's possible or not.

Mr. D'AGOSTINO. We'll do that. And I think it may be worth—if you're amenable to both Under Secretary Koonin and I giving you a full-up integrated response on this question of inertial fusion energy, and NIF, and what does it mean in the out years—we'll write that up, as well as—we'd be happy to come up and talk to you or members of the staff—subcommittee staff.

Senator FEINSTEIN. All right. It just—bottom line, my interest, on the military side, is really to see that we do not become proliferators—

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN [continuing]. That we, by our actions, do not give anyone else the ability to develop new nuclear weapons.

Mr. D'AGOSTINO. Yes, ma'am. That's right. And the great thing about NIF is, it allows us to test—excuse me—to test the small

components in a laboratory, and not do underground testing. That's why we——

Senator FEINSTEIN. That's right.

Mr. D'AGOSTINO [continuing]. That's why we want the NIF.

Senator FEINSTEIN. That's right.

Mr. D'AGOSTINO. So, we want to stay away from this question of underground testing, as far away as we can.

Senator FEINSTEIN. Great. Thank you very much.

Mr. D'AGOSTINO. Thank you, ma'am.

Senator FEINSTEIN. Thank you, gentlemen.

Thanks, Mr. Chairman.

NUCLEAR NONPROLIFERATION

Senator DORGAN. Senator Feinstein, thank you very much.

Let me ask a question that I referred to briefly in my opening statement, and it is about the sums of money that we spend on security upgrades and radiation detection equipment, for example, in Russia and other countries. What happens after we withdraw? We make the investment, we help that country provide some additional security, and then we withdraw. What kind of concern do we have about sustaining these upgrades? Can you give me some notion of where we are on that?

Mr. D'AGOSTINO. Sure. Why don't I start, and then I'll ask Mr. Black to provide some additional detail.

This question of sustainability of security upgrades has been on the forefront, particularly as we get closer to completing our overall job in Russia, at least from the implementation standpoint. The job is never really going to ever end, because it will require, just like any type infrastructure investment, constant observations and looking at it, the like.

The fiscal year 2011 request that you have in front of you gets us to finishing the installation. I believe we have 19 more sites. We're about 92 percent done in Russia with, kind of, that baseline plan.

Senator DORGAN. Can you describe to me what you're doing at a site; just generally.

Mr. D'AGOSTINO. It will involve—generally, it involves doing a security assessment, with the Russians, of what's required at a particular site, what the vulnerabilities are, whether there's an insider threat or whether we have an external physical security threat; and then working with them to design upgrades, whether they're cameras, fences, you know, technology, and integrating those; and purchasing that and then working with them to install.

Steve, do you want——

Senator DORGAN. These are the production sites, right?

Mr. D'AGOSTINO. Well, I wouldn't call them "weapons production sites." We don't have access to those, just yet. But, the material sites, yes.

Senator DORGAN. Weapon materials.

Mr. BLACK. Right. These are all in the—in what's called the Rosatom Weapons Complex. We're working at seven large facilities right now, as the Administrator said; 19 buildings, in particular. And the sorts of things we're doing is increasing the strength of doors; we're putting in central alarm stations; we're putting in

PIDASs, Perimeter Intrusion Detection Alarm Systems, helping strengthen guard forces, reactive forces, and the like. Those are fairly typical security upgrades.

And, in terms of sustainability, what we are doing is, we are turning over—developing, with each site individually, individualized sustainability plans, because some of these sites have their own revenues. They may be factories and they produce other things for the Russian economy, and they may have their own revenue stream. But, in some cases, these facilities don't have enough budgets. And so, what we're trying to do is develop with them a clear understanding of all of the things that are needed to maintain that security investment at that particular site, so each site has its own joint sustainability plan, there are specific milestones, and we're working with the Russians to make sure that they develop regulations—

Senator DORGAN. What is the number of sites?

Mr. BLACK. Total?

Senator DORGAN. Yes.

Mr. BLACK. So, let me—

Mr. D'AGOSTINO. We've done 221 in Russia—

Mr. BLACK. Well, those are the second line of defense sites.

Mr. D'AGOSTINO. Oh, right, right.

Mr. BLACK. Let me get the information for you and bring it back, because I want to give you an accurate answer. It's readily available, it's just not in my head and—

Senator DORGAN. All right.

Mr. BLACK [continuing]. Won't be able to find it quickly.

Senator DORGAN. All right.

Mr. BLACK. I do want to make the point, though, that we have variable degrees of cooperativeness with our Russian partners. They're not all the same. In the case of the Russian Customs Service we have a cost-sharing agreement with the Customs officials. And so, the Russians bear half the cost of all of the second-line-of-defense facilities that are being put in Russia; 170, 175 of those facilities will be paid for completely by the Russians.

The reason the cost-sharing is important is because it's an indication of how committed to the task, in the first place, the Russian host is. In the case of the Ministry of Defense nuclear sites, they have been far more receptive to maintaining security upgrades at roughly two dozen facilities than has Rosatom. But, we're working very closely with Rosatom, as I said, and we're making some progress.

Senator DORGAN. All right.

Mr. BLACK. Does that help?

MANAGING LIFE EXTENSION PROGRAMS

Senator DORGAN. Finally, let me ask about the B61 life-extension programs there. It's, as I'm told, three times the number of components that need to be replaced than the W76; there's about \$190 million requested to study the reuse or remanufacture of nuclear components. You're considering a compressed schedule for it. My understanding is, the first refurbished B61 would be completed by 2017.

Mr. D'AGOSTINO. Right.

Senator DORGAN. So, it's complicated, complex. You know, we went down the road, with the W80, and spent a fair amount of money on refurbishment activities—I think, close to \$500 million—before canceling that program. So, you think the B61 is a critically important program, and you think that, as complicated as it is, we're not going to make the same mistake that we had with the W80?

Mr. D'AGOSTINO. Yes, sir. I think it's—it is a critically important program. It—you know, the early analysis, from our NPR and working with the Defense Department and folks in the interagency, have said that that will be a component. I'll ask the General at the right—when I'm done with my comments—maybe, to jump in and provide some specifics, if he could.

Absolutely, you're right. There are more components than the W76. That's because the 76—I mean, just the warhead, the bomb, is—we're responsible for the whole device. The approaches that we're looking at, though, will allow us to—and I believe—and the key is, exercising the people and getting them into the work necessary to maintain the stockpile. And so, I believe, by—my discussions with Tom Hunter, at Sandia National Laboratories, which have the majority of the work here, and talking with Los Alamos director, Mike Anastasio, they feel very comfortable that their workforce is up to the task.

In essence, we've started some of this thinking already, in the study phase. And this is what we're asking for, is to continue and finish that study phase on the B61 bomb. When we're done with that study phase, just like a construction project, we will want to lock down with commitments on both the laboratory's part, as well as my part, as representing the NNSA, on the exact cost, scope, and schedule for that facility. The important thing is the 2017 date.

And then, General, if you can talk to some of the specifics there.

General HARENCAK. Yes, sir.

That's one of the major requirements of the Department of Defense, is ASAS—NNSA to accomplish the life-extended B61 by 2017. That is an aggressive, yet certainly—we are committed to it, and we will get it done. A key to that, though, is a complete and full study of it, and that's what we're asking to complete as soon as possible.

Our entire enterprise is going to be focused in defense programs. Amongst all the things we do our top two priorities of getting things done is going to be the completion of W76, as we said, and getting this life-extended B61. This is an analog bomb. It's the cornerstone of our air-delivered weapon. It is essentially our only one. It needs to become a digital weapon so it could mate with the F35 for extended-deterrence reasons. That's the 2017 date on that. It's a first-production unit. The F35, regardless of when there are initial operating dates for that program, is irrespective of what we need to do. Our milestone that we must complete is to deliver a life-extended B61 by 2017. In order to do that, we have to start yesterday. And we started yesterday. But, we need to complete this study. It is very large—as you see in our budget, that we're requesting a big lift for B61. And that essentially gets to very quickly locking down how we're going to take this analog bomb and make

it digital; also, how we're going to improve its surety and its safety features, which are vitally important.

ADDITIONAL COMMITTEE QUESTIONS

Senator DORGAN. All right. We are going to submit a number of written questions to you.

Senator FEINSTEIN, do you have additional questions?

Senator FEINSTEIN. I don't believe so, at this time.

Senator DORGAN. All right.

Senator FEINSTEIN. Thank you, though.

Senator DORGAN. Well, then we will be submitting additional questions, Mr. D'Agostino. We appreciate very much your team being here, and your being here. And obviously this is a lot of money.

Mr. D'AGOSTINO. Yes, sir.

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

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

NUCLEAR WEAPONS DESIGN CHANGES

Question. Increases in funding for nuclear weapons science, technology and engineering point to developing capabilities to modify the design of existing weapons and understand the changes. For example, a \$48 million increase for plutonium sustainment allows NNSA to manufacture pits for primaries and quadrupling of funding for advanced certification will develop NNSA's tools to certify changes to the nuclear package of existing nuclear weapons.

Does NNSA have plans to modify the design of nuclear weapons? If it does, what is driving the needs for those changes?

Answer. NNSA will give strong preference, when proceeding with engineering development for Life Extension Programs (LEPs), to options for refurbishment or reuse. Replacement of nuclear components would be undertaken only if critical Stockpile Management Program goals could not otherwise be met, and if specifically authorized by the President and approved by Congress. LEPs will use only nuclear components based on previously tested designs, and will not support new military missions or provide for new military capabilities. Upgrading and/or replacing limited life components (LLCs), such as the neutron generators, is considered a relatively routine maintenance activity to preserve the weapons' viability. Numerous aging mechanisms, including corrosion and adhesive bonding failure, raise concerns relative to non-nuclear components and weapon system performance. Often times, replacing materials, which are no longer attainable or usable because they have been deemed unsafe or environmentally damaging are included as part of an LEP. Other drivers include replacing or adding features to improve the safety and security of the stockpile, such as by replacing conventional high explosives with insensitive high explosives.

Question. How do you reconcile the needs for changes with the JASONs conclusion in its 2009 report that the lifetimes of today's nuclear warheads could be extended for decades without significant changes to their designs?

Answer. NNSA is in agreement with the JASONs conclusion that the lifetimes of today's nuclear warheads could be extended without significant changes to their designs. To increase the safety, security, and effectiveness of our nuclear arsenal, NNSA plans to upgrade limited life components (LLCs) and materials, and incorporate more surety—safety, security, and use control—technology, whenever possible, through LEPs. LLCs reaching their end-of-life will be upgraded with LLCs that have longer expected lifetimes. Certain materials will be upgraded with more attainable materials. Each weapon system will be evaluated on a case-by-case basis and the best technological approach, from a full spectrum of options, will be applied.

Question. To what extent would modifying the design of primaries and secondaries introduce more risk than maintaining them in their current condition?

Answer. NNSA, through LEPs, will use only nuclear components based on previously tested designs. Any modifications to the Nuclear Explosive Package (NEP)

would allow for the introduction of surety features, if feasible, to reduce the risk of accidental or deliberate unauthorized use of a nuclear weapon.

Question. To what extent are potential design changes consistent with the congressionally authorized Stockpile Management Program?

Answer. The congressionally authorized Stockpile Management Program allows for the extension of the effective life of nuclear weapons. NNSA, through LEPs, plans to increase the reliability of our nuclear weapons stockpile by upgrading to longer life LLCs and more readily available and compatible materials. Increases in safety, security, and use control through the incorporation of additional surety features whenever possible, and if feasible, will reduce the risk of accidental detonation and also reduce the risk of an element of the stockpile being used by a person or entity hostile to the United States, its vital interests, or its allies. Because the Nuclear Posture Review directs that strong preference be given to options for refurbishment or reuse, upcoming and future LEPs will produce modified weapons that remain comparable to their original underground nuclear tested designs to ensure certifiability, and will consider the possibility of using the resulting warhead on multiple platforms allowing NNSA to achieve reductions in the future size of the nuclear weapons stockpile.

B61 LIFE EXTENSION PROGRAM

Question. Mr. D'Agostino, the B61 Life Extension Program (LEP) is going to be very challenging. The B61 has three times the number of components that need to be replaced than the W76. In fiscal year 2011, NNSA is asking for about \$190 million to study the reuse or remanufacture of nuclear components. Despite these challenges, NNSA is considering a compressed schedule for engineering and design work to manufacture the first refurbished B61 by 2017.

Given the complexity of the program, is the 2017 date realistic?

Answer. The Nuclear Weapons Council, in 2008, established the 2017 first production unit (FPU) date based on the need to replace several non-nuclear components that are approaching end-of-life and to prevent capability gaps in the U.S. extended nuclear deterrence. The Nuclear Posture Review later recommended that the full range of options, including safety and surety enhancements, be considered to extend the life of a given warhead. The 2017 FPU is achievable provided time-critical technology maturation activities are funded in fiscal year 2010 and fiscal year 2011 prior to the start of Phase 6.3 engineering development work in fiscal year 2012. To address B61 technology risks, NNSA is requesting \$252 million in fiscal year 2011, which is split between the non-nuclear and nuclear study activities (\$136 million) and B61 first use, technology maturation work targeted to advance readiness levels to enable the 2017 FPU (\$116 million).

Question. Are you confident that you are not introducing unnecessary risk with this accelerated schedule?

Answer. Yes. The NNSA augments the weapon system acquisition process with Integrated Phase Gates (IPGs). IPGs use a systems-engineering approach to bring rigor, accountability, and cross-functional integration by using management reviews at key decision points and involving production agencies early in the design process. NNSA incorporated IPGs based on lessons learned from previous life extension programs (LEPs) and to address GAO findings and Congressional concerns about LEP management.

NNSA can manage the risk for the B61 schedule if required technologies are brought to the appropriate level of readiness prior to beginning engineering development in fiscal year 2012. Furthermore, in fiscal year 2012, the Nuclear Weapons Council will review the readiness of key technologies and associated risks prior to authorizing the next phase of development.

Question. Is there a clear nuclear deterrent mission need for the B61 life extension program?

Answer. The recently-released Nuclear Posture Review (NPR) affirms the importance of the B61 in fulfilling air-delivered strategic and extended deterrent capabilities.

MANAGING LIFE EXTENSION PROGRAMS

Question. Mr. D'Agostino, a number of GAO reports have found that NNSA has not effectively managed cost, schedule, and technical risks for the last three life extension programs—the W87, B61, and W76—and that NNSA has not established realistic schedules to complete these projects.

To what extent has NNSA improved its ability to manage cost, schedule and technical risk?

Answer. NNSA is applying corrective acquisition management measures to the current B61 Life Extension Program (LEP) Phase 6.2 Study. These measures were communicated in NNSA's Management Decision letter of March 12, 2009, in response to the Government Accountability Office (GAO) report GAO-09-152C, "Nuclear Weapons: NNSA and DOD Need to More Effectively Manage the Stockpile Life Extension Program." NNSA has made progress on improving the approach to requirements, risk, cost, and schedule management through an improved implementation of the joint DOD-NNSA acquisition process for nuclear weapons refurbishments.

Question. Based on NNSA's current plans, by 2017, NNSA will be completing the W76 life extension, starting the B61 life extension, preparing for the W78 life extension, possibly increasing weapons dismantlement based on treaty obligations, and continuing surveillance of aging nuclear weapons. How does NNSA plan to manage these many activities concurrently, especially when it has not previously managed more than one life extension at one time?

Answer. Trade studies are conducted to assess the need for specific NNSA capabilities and facilities. As part of these trade studies, DOD is involved in assessment of life extension priorities. NNSA is also currently assessing workload in technical maturation and life extension studies across the nuclear complex and will likely be making workload-balancing assignments to optimize execution of multiple life extension activities. Through the early 2000s, NNSA managed the B61 ALT 357, W76, and W80 life extension programs concurrently.

Question. To what extent will the nuclear weapons production plants—Pantex, Y-12, and Kansas City—be able to manage this increase in workload when they already face resources and infrastructure constraints?

Answer. In conjunction with the life extension studies, trade studies are being conducted to assess the refurbishment options, along with overall workload evaluations on the NNSA production facilities and their capacities. For instance, a Canned Subassembly (CSA) reuse study is currently underway for the B61 life extension study that may ultimately minimize the amount of work and resources that will be needed at Y-12 for this LEP. Also, as part of the enhanced acquisition risk management approach to the B61 life extension study, production readiness risks have been identified at the Kansas City Plant and funding priority has been given to minimize these risks by the B61 LEP program management team.

Question. To what extent does the fiscal year 2011 budget help the production plants prepare for increased activities?

Answer. As part of the fiscal year 2011 budget request, the Science, Technology, and Engineering Campaigns and stockpile services were funded at a level to mature the development and manufacturing of technologies needed for Life Extension Programs. In addition, the life extension program management team has given priority to the complementary funding needed for technical maturation at the national laboratories and plants.

NUCLEAR SURVEILLANCE

Question. Mr. D'Agostino, the fiscal year 2011 budget request adds about \$50 million to increase surveillance activities for each weapon system in the stockpile.

To what extent is this increase in funding sufficient to address the JASON's concerns?

Answer. Based on the National Laboratory Directors and the JASON recommendations for a more robust surveillance program, an increase of \$50 million was added for each year split among the weapon programs to sufficiently enable the accomplishment of weapons systems surveillance requirements.

Question. How have you modified the surveillance program and how do you maintain confidence that the new approach will identify any emerging problems as weapons age?

Answer. In 2007, NNSA modified the surveillance testing approach through the Surveillance Transformation Project. NNSA took action to reduce the number of system test activities across all weapon programs, while increasing the actual number of component tests that look for age-related degradations. The design agencies reviewed their component testing programs and increased requirements in that area. NNSA also experienced new requirements for non-destructive evaluations and modeling and simulation techniques and capabilities. In prior fiscal years, NNSA was able to identify some funding within the base program to support the increase in component testing and development of new surveillance diagnostic techniques and capabilities; however, the \$53 million in increased funding included in the fiscal year 2011 request for surveillance activities will allow NNSA to make significant progress on the Surveillance Transformation Project.

In addition, NNSA reorganized the surveillance enterprise structure to improve the alignment of the organizations responsible for the development of surveillance requirements all the way up to those responsible for programmatic and budgetary decisions. Emphasis has been placed on better integration and communication of requirements and prioritization of activities across weapon programs and all sites. This was another issue raised by the JASON study.

NATIONAL IGNITION FACILITY

Question. Mr. D'Agostino, in January 2009, the JASONs criticized NNSA for failing to implement a "critical recommendation" they issued in 2005 to improve oversight and management of the National Ignition Campaign.

Has NNSA implemented the recommendation by establishing both an advisory committee to review scientific and technical issues and an advisory committee to review how NIF will be shared by different users?

Answer. As recommended by the JASON review and endorsed by NNSA, LLNL has formed an advisory group (Chaired by Dr. Alvin Trivelpiece) to review the progress of the National Ignition Campaign. This group has had one meeting and will be producing a preliminary report soon. NNSA has also taken initial steps to form a Federal Review Committee with a charter that will include all of weapons science and technology. This committee will review the use of NNSA facilities as shared national resources. Finally, NNSA has also formed a Planning Council whose purpose is to formulate a detailed plan for weapons experimental activities for all users at all NNSA facilities.

Question. If not, why has it taken more than 5 years to implement this recommendation?

Answer. The NNSA is implementing the recommendation.

WEAPONS DISMANTLEMENT AND DISPOSITION

Question. Mr. D'Agostino, funding for weapons dismantlement and disposition is declining in fiscal year 2011.

Is NNSA reducing the pace of dismantlements?

Answer. No, the pace of dismantlements remains consistent with our commitment to dismantle all currently retired weapons by 2022. However, the dismantlement rate varies depending on the complexity of the weapon types scheduled for dismantlement. Some weapons require considerably more effort and time than others to dismantle. In recent years, NNSA exceeded its planned dismantlement rates due to investments in efficiencies and additional funding from Congress. Consequently, NNSA has some flexibility in adjusting resource commitments in the near term. NNSA remains committed to dismantle all currently retired weapons by 2022.

Question. Is a funding decrease consistent with the backlog of retired weapons awaiting dismantlement and potentially more after the START treaty is signed?

Answer. NNSA's planned fiscal year 2011 dismantlement funding aligns with our schedule to dismantle all currently retired weapons by 2022. The NNSA will review the details of the New START treaty and ensure we take appropriate action to support the commitments made by the President. The schedule and planning through 2022 will need to be adjusted if additional dismantlements are to be added to the workload within that timeframe.

NONPROLIFERATION

Question. From fiscal year 1993 through fiscal year 2010, DOE has spent more than \$2 billion to provide security upgrades and other related assistance to nuclear weapon sites in Russia and other countries. In fiscal year 2011, NNSA requested more than \$200 million to complete this work with the last year of funding for these programs in fiscal year 2012.

How will NNSA ensure that Russia will maintain these security upgrades once the United States withdraws?

Answer. The funds requested will be used to support nuclear security improvements to areas where NNSA has recently been granted access, continue to maintain the systems we have installed over the period of our program, and tackle the challenge of reducing the risk to theft by an insider.

At the same time, NNSA is doing all it can to help Russia take over financial responsibility. For the past several years, NNSA has been working with our Russian partners, primarily the State Corporation for Atomic Energy, "Rosatom," to ensure that they are prepared to sustain our sizeable investment in the long-term. NNSA and Rosatom have agreed to a Joint Transition Plan which identifies the fundamental requirements for sustainable nuclear security programs, and joint projects that will be undertaken over the next few years to ensure these fundamental re-

quirements are in place. Rosatom officials have told NNSA counterparts repeatedly that they understand maintenance of these systems in the long run is their responsibility, however, we believe the added costs for maintenance are being passed on to sites and are not being funded through Russia's Federal budget. Regarding the Ministry of Defense, it has informed us that it will take over full financial responsibility for sustaining permanent warhead sites (11 sites with DOE-funded upgrades, 18 sites with DOD-funded upgrades), and that the Kremlin has promised necessary funds will be made available. MOD is expecting to receive funding in April 2010 for this sustainability work.

The success of these efforts ultimately depends on Russia's willingness and ability to devote the necessary resources. We hope that the Russian Government will increase its nuclear security budget and ensure that these funds are efficiently distributed to the hundreds of nuclear facilities across the vast Russian territory. The Russian nuclear security budget is classified and we have not yet seen much evidence of increases in funding at sites where we are working.

Question. Funding for the gap nuclear material remove program jumps from \$9 million to \$108 million or 12 times more funding than fiscal year 2010. How does NNSA plan to spend this significant increase in funding for this program and what are the challenges in spending this money?

Answer. This activity supports the removal and disposal of vulnerable, high-risk nuclear materials that are not covered by the Russian-origin and U.S.-origin Nuclear Material Remove activities. This includes U.S.-origin HEU other than TRIGA and MTR fuel, HEU of non-U.S.- and non-Russian-origin, and separated plutonium. These activities collectively support President Obama's April 5, 2009 Prague speech in which he called for an international effort to secure all vulnerable nuclear material around the world within 4 years, which was further strengthened in the July 2009 Joint Statement resulting from the Moscow Summit and the September 2009 UNSC Resolution 1887. In accordance with these goals, GTRI is accelerating the return of Gap material from third countries.

In fiscal year 2011, GTRI will remove or facilitate disposition of an additional 161 kilograms of Gap HEU and plutonium from several countries, resulting in a cumulative total of 301 kilograms of HEU and plutonium removed, enough material for more than 10 nuclear weapons. Funds will also be used for preparatory activities for removals planned for 2012.

Additionally, in fiscal year 2011 GTRI will focus a large portion of its funding on HEU spent fuel removals since we have completed most of the HEU fresh fuel removals. Spent fuel removals are more expensive than the fresh fuel removals because the radioactivity of the fuel requires specialized casks and remote operations.

SECOND LINE OF DEFENSE

Question. Funding for the Second Line of Defense (SLD) core program, which involves installing radiation detection equipment at borders in Russia, former Soviet states, Eastern Europe and other key countries is doubling to \$140 million to complete another 55 sites.

Have countries at these 55 sites already agreed to install this equipment?

Answer. The 55 sites are based on our current planning and represent our best projection of the sites at which we will be working. We already have agreements in place to partner with all but two of the countries, and we have every reason to believe that we will sign these additional agreements in the near future, certainly before fiscal year 2011.

Question. Are these sites the highest priority sites to combat nonproliferation?

Answer. Based on our threat analysis, we believe that all these sites are high priority for receiving SLD support.

Question. How will the United States ensure that these countries will properly maintain the equipment after it is installed?

Answer. SLD's Sustainability Program is designed to ensure the long-term operation of SLD systems by Host Country Partners. To this end, SLD works closely with Host Country Partners to develop their indigenous capabilities so that we may fully transition SLD systems to their support. SLD and Host Country Partners agree on joint transition plans in which milestones for the turnover of training, maintenance, and oversight responsibilities (including budget planning) are formalized.

During this transition phase, the SLD Program provides maintenance technicians, training experts, and Sustainability leads to work with Host Country Partners to develop their indigenous capabilities. For maintenance, SLD provides training, tools, and spare parts to ensure equipment remains operable. Maintenance is usually performed by local contractors and includes scheduled maintenance and calibration as

well as urgent or unscheduled repairs. In addition, Pacific Northwest National Laboratory (PNNL) provides support on training transition to the Host Country Partners. PNNL has also established a Help Desk to provide support to local maintenance providers and host nation counterparts in the event of an issue with a system that cannot be resolved at the local level. Through the Help Desk, the program can provide remote expertise or deploy experts from the United States if needed to repair a system if needed.

Question. Has DOE addressed GAO's concerns about corruption of some foreign border security officials, technical limitations of some radiation detection equipment, inadequate maintenance of some equipment, and the lack of supporting infrastructure at some border sites?

Answer. The Second Line of Defense Program addresses corruption through two main approaches. First, radiation portal monitors are networked to central alarm stations (CAS) at the sites. Should an alarm sound or a monitor be disabled, the CAS operator is automatically notified. In most sites, this means that more than one individual is engaged in resolving alarms and would be aware if a monitor were disabled or ignored. This increases the chance that corrupt actions could be observed and countered. In addition, the SLD Core Program has begun integrating the sites into nationwide networks reporting to central officials (usually in the nation's capital). Should a high-priority alarm be generated at a site, or a monitor disabled, other border security officials would become aware and could investigate and validate the actions of the officials at the border crossings. Integration projects are underway in Russia (where the Customs Service is paying for half the installation) and Georgia. Networking is planned to begin in one more country in 2011.

SLD also collaborates with other international organizations, notably the EU and IAEA on training, in addition to the extensive training that SLD provides directly to the partner country as part of the implementation process. SLD believes that this training contributes to strengthening the recipient organizations and building a strong cadre of committed customs and border management officials.

The radiation detection equipment SLD Core provides has been proven over time to be robust, relatively easy to maintain, and effective in detecting special nuclear material (SNM) under limited shielding scenarios. A knowledgeable individual can shield SNM from the passive radiation detection equipment we provide. However, we believe that the equipment that SLD provides is the best and most appropriate detection system currently available for the type of detection activities being carried out. The equipment is carefully installed and its settings optimized to maximize its effectiveness against SNM.

The SLD Program funds maintenance and sustainment contracts that provide for calibration of the equipment it provides. Responsibility for funding maintenance and sustainability transitions to the recipient country after an agreed upon period of time, generally 3 years but longer if necessary. A description of how SLD maintains equipment is provided in the answer to the previous question.

In most cases, infrastructure exists to provide electricity and security for the radiation portal monitors. In many cases, back up power generators are provided to ensure that short-term power outages do not adversely impact the monitors. In cases where sites are not manned year round, or there is insufficient infrastructure, SLD may provide handheld devices in lieu of permanently installed systems.

U.S. AND RUSSIAN PLUTONIUM DISPOSITION

Question. The United States is negotiating an agreement with Russia in which the United States would provide \$400 million to support plutonium disposition in Russia and Russia would pay the other \$2 billion. The fiscal year 2011 budget asks for the first \$100 million U.S. commitment.

What is the status of the U.S.-Russia protocol to dispose of weapons grade plutonium?

Answer. On March 11, the U.S. and Russian lead negotiators initialed the conformed English and Russian texts of a Protocol to amend the 2000 Plutonium Management and Disposition Agreement (PMDA). A set of associated monitoring and inspections key elements was also approved in mid-March. The United States and Russia are scheduled to sign the Protocol in mid-April.

Question. What are the terms of U.S. financial support and what would Russia have to do before we release the first \$100 million and the other \$300 million?

Answer. The United States will spend the \$100 million in the fiscal year 2011 budget request once the amended PMDA and associated liability provisions enter into force (expected in fall 2010 once the Russian Duma ratifies the amended PMDA). DOE has developed a notional plan for spending \$300 million of the \$400 million based on a "milestone approach" to move Russia toward beginning disposi-

tion in 2018. Under the “milestone approach,” the United States would provide funding once Russia has fully completed a milestone and U.S. experts have verified such completion. The remaining \$100 million will be paid to Russia on a pro rated basis for each metric ton of plutonium verified to have been irradiated and disposed (e.g., approximately \$2.7 million per metric ton).

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

NUCLEAR WEAPONS

Question. The President has requested \$11.2 billion for the National Nuclear Security Administration, a 13.4 percent increase from fiscal year 2010. This includes a request of \$7 billion for Weapons Activities, an increase of \$624 million from fiscal year 2010. In your testimony and in the recent op-ed by Vice President Joe Biden, the administration has argued that the funding requests reflects the President’s vision of a nuclear free world and his commitment to stopping the spread of nuclear weapons efforts and maintaining the safety and security of our arsenal without nuclear testing.

Are you concerned that our allies and adversaries will view the massive increase in spending on our nuclear weapons arsenal as an indication that the United States is not serious about a nuclear-free world?

Answer. As President Obama articulated in his April 2009 speech in Prague, the United States is committed to achieving a world without nuclear weapons. While this is a long-term objective, the President expressed his intent to take concrete steps to make it possible. Several of these steps have already been taken.

—Critically, the United States and Russia have already reduced the number of deployed strategic nuclear warheads by about 75 percent, and the signing of New START agreement will take these numbers even lower.

—Moreover, the Nuclear Posture Review deemphasizes the role of nuclear weapons in U.S. national security strategy.

—However, as long as nuclear weapons exist, the United States is committed to maintaining safe, secure, and effective nuclear forces in order to deter potential adversaries and assure U.S. allies and partners.

—The increase in spending will allow NNSA to modernize the infrastructure and sustain the science, technology, and engineering base. By revamping the complex, we will be able to consolidate activities, and respond more effectively to unanticipated future threats. This will not only assure that our stockpile remains safe, secure and effective, but the reinvestment will in fact also facilitate further nuclear reductions by sustaining the confidence in the active weapon systems and lower the need for a large reserve stockpile. Continued investment in the nuclear complex will also enhance our ability to stem nuclear proliferation and nuclear terrorism.

Question. How does the President’s request square with his view that the United States should lessen the importance of nuclear weapons in our national security strategy?

Answer. The President’s request is consistent with his view that investments in the nuclear security enterprise are required to lessen the importance of the nuclear weapons in our national security strategy.

—By maintaining a credible nuclear deterrent and reinforcing regional security architectures with missile defenses and other conventional military capabilities, we can reassure our non-nuclear allies and partners worldwide of our security commitments to them and confirm that they do not need nuclear weapons capabilities of their own.

—By pursuing a sound Stockpile Management Program for extending the life of U.S. nuclear weapons, we can ensure a safe, secure, and effective deterrent without the development of new nuclear warheads or further nuclear testing.

—By modernizing our aging nuclear facilities and investing in human capital, we can substantially reduce the number of nuclear weapons we retain as a hedge against technical or geopolitical surprise, accelerate dismantlement of retired warheads, and improve our understanding of foreign nuclear weapons activities.

Question. How will the President’s request impact our efforts to strengthen the Nuclear Nonproliferation Treaty at the May 2010 review conference?

Answer. The President’s request for increased investment demonstrates our commitment to nuclear nonproliferation efforts. This bolstered the United States’ position to lead the effort to strengthen the Nonproliferation Treaty at the May 2010 review conference.

In last year's Prague speech, the President laid out his vision for ultimately achieving a world without nuclear weapons, supported by a system of enhanced non-proliferation controls and a new international civil nuclear framework. The President's budget request enhances DOE's efforts to strengthen both the U.S. nuclear disarmament record of achievement and the credibility and reliability of the U.S. nuclear deterrent as a stabilizing influence as we proceed toward a nuclear weapon free world. The President's budget request will, among other benefits, allow the Department of Energy to continue with its planned nuclear dismantlement activities and support the provisions of the recently completed New START Treaty. The budget request will also help the Department to continue to transform the DOE Nuclear Weapons Complex to a smaller weapons complex that consolidates activities at fewer sites while allowing the United States to better respond to existing and credible potential challenges. These changes will provide the framework to allow the United States to go to lower numbers of nuclear warheads in the stockpile.

Question. Mr. D'Agostino, as you know, I have long opposed the production of new nuclear weapons by the United States. It is unnecessary and harms our nuclear nonproliferation efforts. During the presidential campaign President Obama said: "I will not authorize the development of new nuclear weapons." The President did not request any funding for the Reliable Replacement Warhead program in fiscal year 2010 and on a conference call with reporters last month you said that "RRW is dead, it is over."

Can you confirm that the fiscal year 2011 budget request does not contain any funding for the Reliable Replacement Warhead program or any new-design warheads?

Answer. Yes. I can confirm that the fiscal year 2011 budget request does not contain any funding for the Reliable Replacement Warhead program or any new-design warheads. Per the Nuclear Posture Review, the administration is focused on maintaining the stockpile through Life Extension Programs.

Question. If the NNSA fiscal year 2011 budget does not include any funding for new-design nuclear weapons, is it accurate to say that you and the directors of the national labs agree that for the foreseeable future the effectiveness of our nuclear arsenal can be maintained into the indefinite future through Life Extension Programs?

Answer. Yes, the Laboratory Directors and I agree that our nuclear arsenal can be maintained into the indefinite future through Life Extension Programs (LEPs). The full range of LEP approaches will be considered on a weapon-by-weapon basis. The Nuclear Posture Review states, "In any decision to proceed to engineering development for warhead LEPs, the United States will give strong preference to options for refurbishment or reuse. Replacement of nuclear components would be undertaken only if critical Stockpile Management Program goals could not be otherwise met, and if specifically authorized by the President and (funding is) approved by Congress."

Question. Mr. D'Agostino, I was pleased to see the recent report of the JASONS, the independent scientific body, which found that the United States can maintain our existing nuclear arsenal for decades with our existing Life Extension Programs. This is great news.

In your view, does this report close the door, once and for all, on a Reliable Replacement Warhead-like program that would produce a new nuclear warhead?

Answer. NNSA does not foresee the need to develop a new nuclear warhead. Each weapon system will be evaluated on a case-by-case basis in order to determine which Life Extension Program option best preserves the weapon's effectiveness, safety, and security. The Nuclear Posture Review makes the point very clearly, "The United States will not develop new nuclear warheads. Life Extension Programs will use only nuclear components based on previously tested designs, and will not support new military missions or provide for new military capabilities."

Question. How will the Nuclear Posture Review influence the size of the reductions in each nation's stockpile?

Answer. The Nuclear Posture Review conducted detailed analysis to determine an appropriate limit on nuclear warheads and strategic delivery vehicles.

—As an initial step, the administration is committed to working with Russia to preserve stability at significantly reduced nuclear force level, through the New Strategic Arms Reduction Treaty (New START), which will replace the expired 1991 START I Treaty.

—New START sets significant mutual limits in deployed strategic nuclear warheads, well below that 2,200 allowed under the Strategic Offensive Reductions Treaty, also known as the Moscow Treaty, which expires in 2012.

- The United States agreed with Russia to New START limits of 1,550 accountable strategic warheads, 700 deployed strategic delivery vehicles, and a combined limit of 800 deployed and non-deployed strategic launchers.
- The Nuclear Posture Review also calls for reinvesting in the nuclear security enterprise's intellectual and physical infrastructure. This additional investment will not only assure that our stockpile remains safe, secure and effective, but will also facilitate further nuclear reductions by sustaining the confidence in the active weapon systems and lower the need for a large reserve stockpile.

Question. Given the substantial commitment to maintaining the safety and reliability of the nuclear arsenal as reflected in the President's budget request for the NNSA, can we go even lower?

Answer. The New START Treaty has been signed. The President has directed a review of potential future reductions in U.S. nuclear weapons below New START levels, but the pace of further reductions has yet to be determined. The Nuclear Posture Review states, "Russia's nuclear force will remain a significant factor in determining how much and how fast we are prepared to reduce U.S. forces. Following ratification and entry into force of New START, the administration will pursue a follow-on agreement with Russia that binds both countries to further reductions in all nuclear weapons. Because of our improved relations, the need for strict numerical parity between the two countries is no longer as compelling as it was during the cold war. But large disparities in nuclear capabilities could raise concerns on both sides and among U.S. allies and partners, and may not be conducive to maintaining a stable, long-term strategic relationship, especially as nuclear forces are significantly reduced. Therefore, we will place importance on Russia joining us as we move to lower levels."¹

NUCLEAR NONPROLIFERATION EFFORTS

Question. I firmly believe that ratification of the Comprehensive Test Ban Treaty is critical to reclaiming U.S. leadership in the nuclear nonproliferation field and bringing us closer to a world free of nuclear weapons. I am pleased that the Obama administration has made ratification of this treaty a priority.

How does the President's budget request support ratification of the Comprehensive Test Ban Treaty? Is there sufficient funding for implementation and verification?

Answer. The President's budget request reflects his commitment to maintaining the nuclear deterrent without nuclear testing and is consistent with the principles of the Stockpile Stewardship Management Plan submitted to Congress. This budget reinvests and recapitalizes the nuclear security infrastructure—including in its science, technology and engineering human capital base—essential for assuring that the stockpile is safe, secure and effective. The President's arms control and non-proliferation policies require these investments so that the Nation is confident that its reduced nuclear stockpile is safe, secure, and effective, without having to resort to nuclear testing.

The President's budget request also supports CTBT ratification because it invests in a robust, science-based Stockpile Stewardship Program (SSP). SSP is the key program that provides the Nation the assurance that the stockpile is safe, secure, and effective without underground nuclear testing. SSP is also the essential program for managing long-term risks to the stockpile as it ages, protecting against technological surprises, and supporting nuclear nonproliferation technology development. The SSP sustains the science, technology, and engineering expertise and exercises the talent for the development of next-generation technologies for proliferation prevention-related nuclear missions, including nuclear forensics, detection, and verification technologies. A sustained science base will provide the ability to respond to the challenge of meeting requirements that may result from the New START or CTBT treaties.

While today's SSP capabilities are supplanting—and even surpassing—the role that nuclear tests once played in understanding our nuclear weapons, the President's fiscal year 2011 budget request will also allow us to revitalize the workforce, sustain the stockpile, and modernize key parts of the physical infrastructure.

Question. I applaud your commitment to supporting President Obama's goal of securing all vulnerable nuclear material from around the world within 4 years.

What do you need from Congress to meet this goal? What programs will be involved? What are the key challenges?

¹ Nuclear Posture Review Report, April 2010, Page 30.

Answer. Congressional support for our budget requests is a critical element to ensuring that we meet the President's goal of leading an international effort to secure all vulnerable nuclear materials within 4 years.

A number of programs within the Office of Defense Nuclear Nonproliferation play a direct role in implementing the work necessary to meet this goal. The Offices of International Material Protection and Cooperation and Global Threat Reduction lead the effort to secure vulnerable nuclear materials from theft or sabotage worldwide. The Global Threat Reduction Initiative seeks to permanently eliminate the threat by converting research reactors and isotope production facilities from the use of highly enriched uranium (HEU) to low enriched uranium (LEU) and by removing or permanently disposing of excess nuclear material. Finally, the Office of Nonproliferation and International Security plays a vital role in strengthening the international system that ensures that nuclear sites worldwide have adequate safeguards measures in place.

The primary challenge that NNSA faces is cooperation of foreign governments. The United States cannot unilaterally eliminate the threat posed by dangerous materials and we therefore rely heavily on cooperation from many international partners. In addition to the activities outlined above, the Office of Defense Nuclear Nonproliferation has been actively involved in various initiatives undertaken to bolster U.S. leadership in nonproliferation and arms control, such as the 2010 Nuclear Security Summit, the Joint Statement from the Moscow Summit in July 2009, and the September 2009 United Nations Security Council (UNSC) Resolution 1887.

NATIONAL IGNITION FACILITY

Question. Mr. D'Agostino, some assert that the National Ignition Facility may be a prototype for a fusion nuclear powerplant some day. I understand that the National Academy of Sciences and the National Academy of Engineering are conducting a study on Inertial Fusion Energy in part to explore the viability of that vision.

Do you agree that the results of this study could be enhanced if the National Ignition Facility is able to provide the Academy with extensive analysis and testing?

Answer. While I agree that the National Ignition Facility (NIF) will ultimately play a central role in any program designed to evaluate concepts for inertial fusion energy, I do not believe that specific new experimental work will be required for the current National Academies study. The National Academies panel has been asked to assess the prospects for Inertial Fusion Energy (IFE) as a power source; to identify scientific and engineering challenges, cost targets and research and development objectives associated with developing an IFE demonstration plant; and to advise the DOE on an R&D roadmap aimed at creating a conceptual design for such a demonstration assuming success in ignition at NIF as a starting point. This will be a wide-ranging assessment that will look at various schemes for target physics and component technologies beyond those currently being investigated as part of the National Ignition Campaign and will depend primarily on existing computational and experimental studies of the various approaches. The most important task for NIF, in support of the study, is to achieve ignition as soon as possible since the prospects for development of inertial fusion for energy applications is dependent upon achievement of this critical milestone. The current schedule for this is already quite aggressive.

Question. Do you believe that Lawrence Livermore National Lab would need additional funding to provide the Academy with such testing and analysis?

Answer. Specific funding has not been provided to the laboratories to support such studies in the past, but they may use their discretionary research funding to support work they deem necessary for their participation. If funding was directed to support analysis and testing in support of the National Academies study, a mechanism would have to be identified to ensure equitable access to all potential participants and thus all potential IFE alternatives in the study.

Question. Could the NAS's ability to make sound technical judgments on the potential of Inertial Fusion Energy be impaired due to the lack of technical development of the trade-offs of various design approaches if it does not have full access to NIF testing?

Answer. Because the NAS has been asked to help establish an R&D roadmap for IFE based upon the current state of maturity of the relevant science and technology, it is not likely that their conclusions could be impacted by testing prior to the achievement of ignition. The most important question that NIF will address relevant to the National Academies study is the demonstration of ignition, which is already the focus of the National Ignition Campaign. All of the nascent inter-

national efforts on IFE are also planning based on the U.S. Inertial Confinement Fusion program being the lead on the actual demonstration of ignition.

Question. Do you believe that developing Inertial Fusion Energy should be part of the mandate of the NNSA, the DOE Office of Science, or both? Why do you believe this?

Answer. Through leadership of the three Department of Energy Under Secretaries, and reporting through Under Secretary Koonin, we have an internal DOE study to assess several areas of research and development that currently cut across departmental organizations. We have chosen to include inertial fusion energy in those assessments because of its potential, and we will use this process to consider when and how to recommend to Congress that a modified program might be established.

Question. Mr. D'Agostino, a year after completion of construction of the National Ignition Facility, NNSA has proposed an operations budget that may not permit Lawrence Livermore National Lab to run this facility full time.

Do you agree that after making this sort of capital investment, NNSA should provide the resources necessary to operate the facility 24 hours a day, 7 days a week?

Answer. NNSA's requested funding provides for 24-hour-a-day, 7-day-a-week (24/7) operations at NIF. A very careful experimental plan has been formulated for the period through the first attempts at ignition. In this plan, the most efficient experimental shot sequence was deemed to be about 16 hours-per-day/5 days-per-week (16/5) with the overall NIF operations staff remaining on a 24/7 status. This plan is also more compatible with the continuing installation of sophisticated equipment since the facility operations schedule must allow adequate time to ensure safety during maintenance and installation of experimental equipment.

In the early experimental operation of NIF, the shot sequence was 10 hours-per-day/7 days-per-week. NIF is currently in the process of installing sophisticated cryogenic (and other) equipment that will enable DT-layered target operation. After this installation period, NIF will begin the 16/5 shot sequence that is believed to be optimum for the very complex targets that will be utilized for many of the shots.

Question. Mr. D'Agostino, at our hearing, you emphasized that it is very important to focus on getting to ignition at NIF, before putting too much work into next steps predicated on successful ignition. However, I am told that scientists in other countries are barreling ahead with their work "assuming ignition," and that we risk falling behind as a result.

Are you concerned that we could fall behind other countries in this area due to our caution? Please explain.

Answer. The Department of Energy is a world leader in inertial confinement fusion research, and the National Ignition Facility gives the United States an unparalleled capability to undertake this research. Our aggressive plan for ignition will lay the basis for the rest of the world to pursue research in inertial fusion energy, with reliance on U.S. development of critical technology such as diode-pumped laser systems. A similar facility called Laser Mega Joule is expected to eventually provide a French capability to pursue ignition, but the United States is in the unique position to pursue this major scientific achievement now. Current European plans for Inertial Fusion Energy are at a formative stage and will not involve significant activity until about 2020. Our scientists are certainly aware of the worldwide activities in this area, and I am not concerned that we could fall behind other countries in this area in the foreseeable future.

The U.S. ICF Program is actively pursuing the application of ignition to the crucial needs of the weapons program. With respect to the Inertial Fusion Energy application, the National Academy of Sciences has been asked to provide an analysis of the best directions to follow after the achievement of ignition. We anticipate using the NAS Panel report (an early draft will be available in less than 1 year) as a key component in planning for the application of ignition to energy issues.

LLNL STUDY

Question. Mr. D'Agostino, in 2007 a private consortium began operating Lawrence Livermore National Lab. I still question the logic of having a private contractor run national nuclear labs as for-profit corporations. Is NNSA willing to conduct a thorough review of whether this privatization effort has produced significant benefits to the productivity of our national labs?

Answer. Yes. NNSA is currently sponsoring the study that was mandated in the fiscal year 2011 National Defense Authorization Act to be conducted by the National Academies of Science. The study, to be conducted in two phases, each by a separately appointed committee, will provide an independent external review of the following for the Lawrence Livermore, Los Alamos, and Sandia National Laboratories:

- The quality of the scientific research being conducted at the laboratory, including research with respect to weapons science, nonproliferation, energy, and basic science.
 - The quality of the engineering being conducted at the laboratory.
 - The criteria used to assess the quality of scientific research and engineering being conducted at the laboratory.
 - The relationship between the quality of the science and engineering at the laboratory and the contract for managing and operating the laboratory.
 - The management of work conducted by the laboratory for entities other than the Department of Energy, including academic institutions and other Federal agencies, and interactions between the laboratory and such entities.
- Phase 1 will address elements 4 and 5 of the Statement of Task and aspects of element 3. A separate committee will be formed for Phase 2, which will address elements 1 and 2 of the Statement of Task and aspects of element 3.
- The report from the NAS is expected to be complete in January 2012.

QUESTIONS SUBMITTED BY SENATOR ROBERT F. BENNETT

WEAPONS ACTIVITIES

SURVEILLANCE

Question. Mr. D'Agostino, the budget request states that funding has been restored to fully execute the surveillance program.

What is the budget for surveillance, and how does that amount compare to fiscal year 2010? Is this enough to make the surveillance program “whole”?

Answer. In fiscal year 2011, NNSA requests \$66 million directly for Enhanced Surveillance. Within Directed Stockpile Work (DSW), there is over \$300 million dedicated to surveillance activities, including the DSW base capability for conducting surveillance in stockpile services and the specific weapon surveillance activities in stockpile systems. For comparison, the fiscal year 2010 appropriation authorized \$69 million directly for Enhanced Surveillance and approximately \$200 million dedicated to surveillance activities in DSW.

Based on NNSA's actions to do surveillance smarter and more efficiently, the fiscal year 2011 request provides an adequate and balanced surveillance portfolio.

PLUTONIUM SUSTAINMENT

Question. Mr. D'Agostino, the budget request includes a \$50 million increase for Plutonium Sustainment to restore the capability to produce 10 pits per year.

What happened to this capability? Wasn't it achieved in fiscal year 2007?

Answer. The NNSA successfully produced 11 W88 pits in fiscal year 2007. The funding in 2007 was \$165 million which was the level necessary to attain and maintain the capability to produce up to 10 pits per year. However, fiscal year 2008 and fiscal year 2009 funding levels were \$135 million and \$143 million, respectively, which resulted in the capability not being fully maintained as intended and necessary infrastructure investments to be deferred. The increase of \$50 million will restore the funding levels to maintain this capability back to its required level and will also support development of a Defense Programs power supply mission. The increase will support upgrades and new equipment items. Additionally, as part of our Plutonium Sustainment mission, NNSA will work with LANL to revise and update equipment layout in Plutonium Facility 4 to streamline the pit production process that is co-located with existing Research and Development activities.

FIRP

Question. When Congress authorized the Facilities and Infrastructure Recapitalization Program (FIRP) to buy-down legacy deferred maintenance backlog, it was designed as a finite program with a congressionally-mandated end in fiscal year 2013. Yet the full scope of legacy deferred maintenance has not been bought down and newly deferred maintenance has accumulated. Why has adequately maintaining infrastructure been such a problem for NNSA? What would NNSA do with additional FIRP funds if the program were extended or succeeded?

Answer. When FIRP was authorized, NNSA determined that an acceptable goal for deferred maintenance reduction was on the order of \$1.2 billion, which was 5 percent of the value to replace the physical infrastructure. This level should provide a facility condition equivalent to the best managed Federal and private sector campuses.

FIRP was designed to be completed by fiscal year 2011. Annual funding for FIRP remained on track through fiscal year 2005 and resulted in sizable reductions of deferred maintenance across the complex through the completion of high priority projects supporting the Stockpile Stewardship Mission. Thereafter, weapons activity funding for facility maintenance and deferred maintenance reduction struggled in the face of reduced appropriations. The direct impact of fewer annual dollars slowed the progress of deferred maintenance reduction. In light of these challenges Congress authorized in the extension of FIRP to fiscal year 2013 and the \$1.2 billion goal was reduced to \$900 million.

If additional funds were provided, the NNSA would continue its goal of to reduce deferred maintenance to industry standards based on the annual increases furnished. Additional funds would be prioritized to address unfunded deferred maintenance projects, as well as to further support the Facility Disposition subprogram, which has been restarted this year because of the growing need to dedicate resources specifically to dismantle and dispose of excess deactivated facilities. When the FIRP Facility Disposition subprogram ended in fiscal year 2008, it had successfully demolished more than 3,100,000 gross square feet of excess facilities.

TRITIUM READINESS

Question. Mr. D'Agostino, NNSA is facing significant technical challenges in its Tritium Readiness Program that have caused the Tennessee Valley Authority to limit the number of Tritium Producing Burnable Absorber Rods in its reactor (thus affecting the amount of Tritium produced for extraction).

Is NNSA taking any action to develop alternative Tritium production processes to the current plan to produce tritium at commercial light water reactors?

Answer. No other alternative to producing tritium in commercial light water reactors is being considered at this time. NNSA and TVA entered into an interagency agreement in the year 2000 which called for TVA to perform irradiation services for NNSA using any of the following reactors; Watts Bar Unit 1, Sequoyah Units 1 and 2. Under the interagency agreement, NNSA notifies TVA of its irradiation requirements and TVA decides how best to accomplish the irradiation, specifically, which reactors will be used to accomplish the irradiation services. To date TVA has met all requirements through the use of Watts Bar Unit 1 only. TVA has taken and will continue to take steps to get Sequoyah ready for potential future irradiation services.

TVA produces tritium for NNSA through the irradiation of Tritium Producing Burnable Absorber Rods (TPBARs). Although TPBARs have been experiencing higher than expected permeation rates of tritium into the reactor coolant system, TVA has maintained levels below its regulatory limits to ensure public health and safety. NNSA and TVA are developing plans to continue to meet NNSA tritium requirements using only the Watts Bar reactor, however, the Sequoyah reactors would also be available as backups, if necessary.

Even with the challenges the program faces, the production of tritium at commercial light water reactors remains the best means to produce tritium.

PHYSICAL SECURITY BUDGET

Question. The budget request calls for a decrease for Defense Nuclear Security by \$49 million or 6 percent. The decrease is attributed to implementation of the Graded Security Protection (GSP) Plan and to "The Deputy Secretary's Security Reform Initiative."

How has implementation of the GSP already effectuated security cost savings and what are they?

Answer. The issuance of the Department's 2008 GSP Policy, which replaced the 2005 Design Basis Threat (DBT) Policy, has enabled the National Nuclear Security Administration (NNSA) to take advantage of cost avoidances tied to the DBT implementation plans, as well as cost savings associated with ongoing site security operations. In terms of cost avoidances, the 2008 GSP Policy allowed NNSA to eliminate approximately \$195.6 million in unnecessary one-time security upgrades that were contained in the site DBT implementation plans. In addition, NNSA was able to avoid over \$30.2 million in recurring annual costs associated with unneeded additional protective force personnel connected to 2005 DBT implementation plans. This has yielded a total cost avoidance of over \$419.6 million from the startup period of the DBT implementation plan in 2008, through the duration of the fiscal year 2012–2016 Future Years Nuclear Security Program. In addition to these cost avoidances, NNSA is working to find efficiencies for current Category I nuclear security operations through the Zero-Based Security Review (ZBSR) initiative. Under the ZBSR, NNSA is collaborating with other organizations within the Department of Energy

(DOE) and the Department of Defense (DOD) to pilot an innovative GSP Implementation Assistance Visit (GSP-IAV) approach that provides a strong Federal-Contractor partnership in developing and implementing robust security programs that provide an acceptable level of risk and are consistent across the NNSA nuclear security enterprise and with others that have similar security missions. In our first field trial of the GSP-IAV, conducted at the Nevada Test Site, we have identified significant potential cost savings associated with protecting the Device Assembly Facility (DAF)—while maintaining exceptionally high protection levels for the facility. We are in the process of more fully evaluating these proposed changes before making any final decision on implementation. Our plans are to conduct GSP-IAV activities at all Category I NNSA sites by the end of this fiscal year. We are confident that efficiencies we expect to gain through the NNSA ZBSR initiative will enable us to meet fiscal year 2011 funding targets for safeguards and security while providing a strong security posture consistent with the Department's GSP policy.

Question. What is "The Deputy Secretary's Security Reform Initiative"—is this the "Zero-Based Security Review" you discussed in your testimony? How does this generate cost savings?

Answer. The Deputy Secretary's Security Reform Initiative and the ZBSR are separate but closely connected activities. The Deputy Secretary issued a challenge to the Department to reform the security program and develop innovative approaches to security that were capable of maintaining high levels of security but also eliminated unnecessary costs and productivity drains associated with low-value security requirements and/or security administration activities. The ZBSR is the NNSA's answer to the Deputy's challenge and since June 2009, NA-70 has been working closely with NNSA field sites and the Office of Health, Safety and Security (HSS) to comprehensively reexamine our security requirements and implementation expectations. The ZBSR has identified and will implement improvements to reduce both security costs and mission impacts, while maintaining very high levels of protection for our critical national security assets. The NNSA ZBSR approach is consistent with DOE management reform principles and is strongly supported by both the Federal and contractor communities.

NNSA's security reform initiative is built along three main tracks: (1) reforming security policy; (2) reforming the Category I nuclear security program; and (3) improving the governance of the Federal and contractor security assessment programs.

- Using field-led teams, NNSA has developed four draft security "standards" covering Information Security, Physical Protection, Protective Forces, and Program Management & Planning. The standards will document NNSA expectations for implementing existing DOE directives that are tailored to our nuclear security enterprise.

- The ZBSR teams used a "first-principles" approach to ensure that security requirements meaningfully contribute to the goal of protecting national security assets and actually reduce security risks. The teams also focused on driving consistency with current national standards into the core set of NNSA security requirements.

- For high-consequence nuclear security operations, NNSA is working closely with HSS and DOD in piloting an innovative risk assessment approach that is fully consistent with the new DOE Graded Security Protection (GSP) policy. The pilot will focus on a peer-reviewed assessment of adversary scenarios and risk informed security response options.

- NNSA is working to improve the management structure for our nuclear security operations. This includes developing new approaches for making senior-level, risk-informed decisions on matching security capabilities to meet credible threats and determining the necessary and sufficient investments for nuclear security operations. This initiative is closely aligned with the Committee of Principals (CoP) task to more closely align DOD and NNSA nuclear security approaches.

- As a complement to improving our risk management processes, the Office of Defense Nuclear Security (DNS) is also working on a standardization initiative to improve the efficiency of NNSA nuclear security operations. This effort will involve the use of the NNSA Supply Chain Management Center (SCMC) as a common sourcing and procurement mechanism, and will provide cost savings through the standardization of protective force uniforms, shields, and select items of security equipment. In addition to the SCMC approach to leveraging larger buys, DNS has coordinated with DOD's Joint Munitions Command to be able to buy ammunition from their contracts. Savings are realized both in unit price as well as avoidance of site overhead taxes—which can exceed 50 percent at some sites. For ammunition not available through

DOD, the Service Center will set up contracts with commercial vendors at pre-negotiated prices for all sites to be able to order from.

—Due to the self-regulatory nature of the NNSA security program, both line management oversight and Independent Oversight will be needed in this new model to provide feedback on performance and provide assurance to all stakeholders that NNSA can effectively perform its vital national security missions. Enhancing contractor assurance systems are a major focus in improving our performance assurance processes. We will all continue to ensure that we have the right level of Federal oversight provided by NNSA Site Offices. Additionally, NNSA is working with HSS to ensure that the Office of Independent Oversight will continue to provide us with extremely valuable feedback on the effectiveness of our security program.

Question. Can you assure us these cost savings measures do not have a detrimental effect on security?

Answer. Absolutely, physical security remains a core NNSA mission capability and we will continue to focus on this area in the future. NNSA is working closely with the Department to ensure our security reform initiatives are carefully targeted to eliminate unnecessary costs and remove barriers to improving the productivity of our national security mission, while maintaining the highest standards for the protection of our critical national security assets. We intend to carefully monitor the implementation of our reform efforts and will be working to improve the capabilities of our site office Federal staff to provide comprehensive oversight of the contractor's implementation of our security program requirements. In addition, we are partnering with the HSS organization to find innovative ways to strengthen Independent Oversight activities as well as improve our ability to apply inspection lessons-learned across the NNSA enterprise.

DEFENSE NUCLEAR NONPROLIFERATION

Question. In the fiscal year 2011 budget the significant funding increase requested for U.S. Surplus Fissile Material Disposition is largely due to the consolidation of 3 major construction projects in this account: the Mixed Oxide Fuel Fabrication Facility (MOX), the Pit Disassembly and Conversion Facility (PDCF), and the associated Waste Solidification Building (WSB) for these facilities.

What are the technical reasons for combining this project with the Office of Environmental Management Plutonium Preparation project?

Answer. Potential programmatic, life cycle, and schedule advantages that would result from combining NNSA's PDCF project with EM's Plutonium Preparation (PuP) project include:

- Cost avoidance for surplus plutonium disposition program;
- Avoidance of expenditures for the design, construction, operation, and decontamination and demolition of an additional secure, Hazard Category 2 nuclear facility;
- Greater program and schedule flexibility through an incremental approach to project execution;
- Cost avoidance at PANTEX by establishing early surplus pit storage at SRS; and
- Load leveling of Secure Transportation resources.

Question. Will PDCF be operational in time for the MOX facility to operate without pause?

Answer. DOE has planned for PDCF to begin operations several years after the start-up of the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF). To fill the feedstock gap, DOE is relying on several options including: (1) disassembling surplus pits at LANL (ARIES) in order to produce at least 2 metric tons of plutonium oxide for MFFF; (2) processing 7.8 metric tons of additional non-pit material suitable for MFFF feedstock currently under the jurisdiction of the Office of Environmental Management at the Savannah River Site; (3) working with nuclear utilities interested in irradiating MOX fuel to adjust the quantity and timing of initial fuel deliveries; and (4) planning to start-up limited processes in the PDCF to produce early feedstock for MFFF.

Question. The fiscal year 2011 budget request includes \$100 million for Russian Surplus Fissile Material Disposition to meet a portion of the U.S. \$400 million pledge. Additional funds to fulfill this pledge are not included in the FYNSP. When are requests anticipated? How did NNSA determine that \$100 million was needed this year? What will it pay for and over how long?

Answer. DOE is requesting \$100 million in fiscal year 2011 to demonstrate to Russia that the United States is serious about fulfilling our \$400 million commitment and to begin work that will enable Russia to start disposition in 2018 as called

for in the amended Plutonium Management and Disposition Agreement (PMDA). Work to be undertaken includes removing part of the BN-600 reactor that breeds plutonium, configuring the BN-800 reactor to operate as a burner rather than a breeder of plutonium, establishing a capability to fabricate surplus weapon-grade plutonium into MOX fuel, and establishing a monitoring and inspection regime. Additional funding will be sought once DOE and Rosatom reach agreement on areas of U.S. assistance and once the majority of the initial \$100 million has been costed. We anticipate that the last \$100 million increment of the \$400 million will be requested over a number of years beginning in fiscal year 2018 timeframe to be paid to Russia on a pro rated basis for each metric ton of plutonium disposed of (e.g., approximately \$2.7 million per metric ton).

HUMAN CAPITAL

Question. How does NNSA ensure that the nuclear enterprise (Federal and management and operation contractors) sustains the skills needed for current and future missions—including those skills needed for currently inactive missions, such as test readiness?

Answer. The NNSA and its Management and Operating (M&O) contractors proactively pursue the development of the next generation nuclear security enterprise workforce.

- A robust Stockpile Stewardship Program (SSP) provides key opportunities to attract and retain the science, technical, and engineering workforce. SSP promotes skill-building and exercising of talent by conducting, for example, complex integrated experiments at the Nevada Test Site, and on the major NNSA facilities, such as the National Ignition Facility (NIF), Dual-Axis Radiographic Hydro-test Facility (DARHT), Joint Actinide Shock Physics Experimental Research (JASPER), and Z—the pulsed power machine.

- In addition, active life extension programs, such as the B61 LEP, further exercise the full spectrum of development work, from advanced and exploratory concepts through product realization, and develop the critical intuition, judgment and confidence present only in experienced scientists and engineers who have applied their skills to real nuclear weapons design and development work. This work is essential to attracting and retaining the scientists and engineers necessary to sustain the Nation's nuclear deterrent.

- Critical skills for less active missions must also be maintained. The Underground Nuclear Weapon Test readiness program is an example. Test-readiness skills are exercised through major science experiments at the Nevada Test Site and the Sub-Critical experiments that take place in U1a, an underground tunnel system.

- Further, knowledge preservation programs have been in place since the end of nuclear testing, archiving underground test data, countless documents, and hundreds of videotaped interviews to ensure that should a decision be made to resume nuclear testing, the skill mix needed will be readily reconstituted.

Question. How have external programs and activities (“work for others”) helped or hindered the enterprise to sustain critical skills?

Answer. The nuclear complex has a long history of performing strategically aligned work for others (WFO) programs with the express intent of maximizing the technical value to the NNSA and to other agencies in meeting their national security mission requirements. NNSA and WFO programs not only help sustain existing critical competencies and technologies, but enable the development and maturation of new leading edge science, technology, and associated critical skills that would otherwise not be possible. Examples of NNSA mission critical capabilities that provide benefit to and receive benefit from aligned WFO programs include:

- Materials (including energetic and non-energetic material design, synthesis, testing, and characterization from the nano- to the macro-scale);

- Information science & technology (including the full range of modeling, simulation, visualization, and knowledge-creating integration of large data sets to maintain exquisite situational awareness, perform intelligence assessments, or make science-based predictions of complex systems);

- Science of signatures (including nuclear forensics, integrated systems for remote modeling, detection of nuclear and radiological material, and the prevention of technological surprise); and

- Systems engineering (low volume production against stringent safety, security, and reliability requirements throughout an extended service life, robust command and control, exacting performance in challenging diverse environments).

Regardless of funding source, work such as advanced supercomputing, fundamental material science, design and production of unique microelectronics and sub-

systems, and deployment of fully engineered systems (e.g., B61 LEP, nonproliferation systems, satellites) exercises the full spectrum of science, technology, and engineering skills of the Nuclear Security Enterprise on an ongoing basis to the joint benefit of NNSA and WFO agencies. Additionally, the diverse and demanding technical work portfolio enables the Nuclear Security Enterprise to attract and retain the best talent in many critical skill areas.

Question. To date, how does NNSA identify critical skill gaps at an enterprise-wide level?

Answer. Each M&O contractor identifies the critical skill gaps. A comprehensive, enterprise-wide inventory of these skills and capabilities is being developed to pinpoint capabilities at risk, identify gaps, and develop productive recruitment/retention strategies.

Question. What assistance does NNSA provide to management and operation contractors for recruiting and retention efforts? What changes, if any, is NNSA planning to make regarding its role sustaining critical skills enterprise-wide?

Answer. NNSA and M&O contractors encourage the development of the next generation workforce with succession planning programs in the form of institutes, fellowships, internships, capstone projects, and post-doctoral appointments. Among other outcomes, these institutes and collaborations build relationships with students to improve their recruitment potential, and they also offer educational programs to personnel to strengthen their individual critical skills. Beneficial temporary reassignments, including detail assignments, job swaps, and acting management roles, have been found to benefit the “sending” as well as the “receiving” organization.

One key program NNSA uses to address critical skill gaps is Laboratory Directed Research and Development (LDRD). The LDRD program promotes highly innovative exploratory research among the scientists, technicians, and engineers to respond to present national security mission needs and to anticipate future ones. The program funds projects that pursue technological solutions to the most urgent challenges facing our Nation or that promote science and engineering foundations that will lead to new research and development.

Senator DORGAN. It is an increase in funding for some very important programs. And the questions that have been raised, I think, are questions you, as a manager, I’m sure, raise every day. How do we do this? How do we do it effectively and efficiently?

Mr. D’AGOSTINO. Right.

Senator DORGAN. How do we give the taxpayer full value for their money on these important security issues?

Mr. D’AGOSTINO. Right.

SUBCOMMITTEE RECESS

Senator DORGAN. So, we thank all of you for your willingness to be here.

Mr. D’AGOSTINO. Thank you.

Senator DORGAN. This hearing is recessed.

[Whereupon, at 11:27 a.m., Wednesday, March 10, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2011

THURSDAY, MARCH 11, 2010

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

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

Present: Senators Dorgan, Murray, Johnson, Landrieu, Reed, Lautenberg, Harkin, Tester, Bennett, Cochran, Bond, Alexander, and Voinovich.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

STATEMENT OF HON. JO-ELLEN DARCY, ASSISTANT SECRETARY

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. Good morning. We'll call to order the hearing. This is a hearing of the Subcommittee on Energy and Water of the Senate Appropriations Committee. We appreciate all of you being here.

Today, the subcommittee will take testimony on the fiscal year 2011 budget requests for the U.S. Army Corps of Engineers and for the Department of the Interior.

Testifying for the Corps will be Jo-Ellen Darcy, the Assistant Secretary of the Army for Civil Works; Lieutenant General Robert Van Antwerp, Chief of Engineers for the U.S. Army Corps of Engineers.

Testifying for the Interior will be Anne Castle, Assistant Secretary for Water and Science at the Department of the Interior, and Michael L. Connor, Commissioner of the Bureau of Reclamation.

I appreciate all of you taking time to be with us this morning.

General Van Antwerp, I know you are aware of the National Weather Service predictions of a very high likelihood of major flooding in a number of communities in North Dakota and Minnesota and throughout the Midwest this spring. I've already asked the Corps districts that cover North Dakota to do as much advance preparation as is possible, and if the flooding is as severe as some predict, I'll be calling on you for much more help during the flood fight. Almost everyone remembers the weeks in which the Nation

watched every single day as they were on a knife's edge, wondering whether the dikes would hold on a substantial, major flood in Fargo and Moorhead. So, we might be right back into that in just the coming weeks. Thank you for the work the Corps is doing.

Regarding the fiscal year 2011 budget, the President has talked about an overall discretionary spending freeze for fiscal year 2011. That, however, has translated into a 9.3 percent cut for the Corps budget and a 2 percent cut for the Bureau budget. In my judgment, those are the wrong agencies to be cutting in the current economic situation. The Recovery Act was a shot in the arm—no question about that—but we should be building on that effort with more robust investments in water projects especially, not returning to chronically underfunding our needs.

The Corps and the Bureau are agencies that we depend on to build the water infrastructure that moves our Nation's cargo, to reduce the impact of flooding, to provide irrigation water, to provide hydropower, and to restore our environment. Nearly all of the work is contracted to the private sector, which means that there are new jobs for our citizens when we get these projects up and running. Not only does the work of the agencies provide jobs now, but the infrastructure that is constructed continues to benefit the economy. It's an asset for this country for decades in the future, which then, in turn, creates additional new jobs.

Unfortunately, in my opinion, the budget request ignores these facts and reflects the consistent underfunding that we've seen in too many prior budgets. The fiscal year 2011 budget for the Corps of Engineers proposes \$4.939 billion, which is \$506 million below fiscal year 2010 enacted of \$5.45 billion. Not only is the fiscal year 2011 amount less than what was enacted last year, it's 4 percent below what the administration proposed last year in their budget.

Secretary Castle and Commissioner Connor, the two major project accounts for the Department of the Interior under the jurisdiction of this subcommittee are the Central Utah Project Completion Act and water and related resources for the Bureau of Reclamation. Your budgets are relatively flat compared to fiscal year 2010. While the Central Utah Project is up \$1 million, the Bureau of Reclamation is down \$23 million from the current year. A flat budget is a declining budget for your agencies, and that's just a fact because you have additional salary and other expenses from inflation. Personnel, material, contract costs continue to increase. So, you are accomplishing less work with the same money based on the budget request. The needs for water and power, particularly in the west, continue to rise, along with population increases in western States.

I know that all of you, as members of the administration, in your prepared remarks, will tell us, as you must today, that this is a responsible budget request for your agencies, and it meets the country's needs. I have served here a long, long time, and your role here is to reflect and support the administration's budget. I understand that and am not surprised by it. I know of only one occasion where an official of an administration came and sat at that table, I think it was former Congressman Parker, and he was just unbelievably honest when asked, is this enough money for your agency? He said of course not; we're dramatically underfunded. The next day, he

was dramatically out of work. So, we have not gotten such a burst of candor since, and that was probably 10 years ago.

But I must tell you, from my personal standpoint, I do not think this is a good budget request for the Corps of Engineers and for the Bureau of Reclamation.

The top six construction projects in the Corps budget account for \$771 million of the \$1.7 billion requested for construction work all across the United States. That's 45 percent of the total just for six projects. Only one of the six projects has a benefit-to-cost ratio. The other five are for dam safety activities, environmental restoration, and environmental compliance.

In the general investigation account, two studies account for 30 percent of the money proposed by the administration in that account. Nearly half of the funding goes to national programs, rather than the studies of water resource needs. There are proposed new construction starts for a \$1.8 billion environmental restoration project. One of the studies that will be funded, if we accept this budget, would lead to a \$1 billion flood control project.

The question that we have to ask now is: How are we going to pay for them? We need to plan for that. I think, in many cases, these are very important priorities. The metrics and the budget criteria, I think, seem to drive the budget out of balance. And there's certainly nothing about the criteria that's any better than the criteria this committee uses to put together our approach, our annual spending recommendations. Our decisions are generally based on the law and the long-standing policy understandings between the executive and the legislative branch.

The decisions that the administration makes in their budget generally is the basis for the annual spending plan that this subcommittee develops, but the subcommittee will have no choice this year, frankly, but to make some changes in the fiscal year 2011 spending plan to rectify what I think are some of the inequities. I can't speak for everybody on the subcommittee, but I would say that I think the consensus of this subcommittee will not be to support cutting a half a billion dollars out of the Corps of Engineers' funding at this time. It is just not a thoughtful recommendation.

PREPARED STATEMENT

I do have a longer statement for the record, which goes into much more detail, but I wanted to highlight just a few of the issues.

[The statement follows:]

PREPARED STATEMENT OF SENATOR BYRON L. DORGAN

Good morning, the hearing will come to order.

Today, the subcommittee will take testimony on the fiscal year 2011 budget requests for the U.S. Army Corps of Engineers and the Department of Interior.

Testifying for the Corps will be: Jo-Ellen Darcy, Assistant Secretary of the Army for Civil Works.

Ms. Darcy, Congratulations on your confirmation Assistant Secretary. This is not our first meeting, but it is our first hearing together. I look forward to working with you on the many water resource problems that we have across this country.

Lieutenant General Robert L. Van Antwerp, Chief of Engineers for the U.S. Army Corps of Engineers.

General Van Antwerp, always good to see you, welcome.

As I am sure you are both aware, the National Weather Service has predicted a high likelihood of major flooding in a number of communities in North Dakota as well as throughout the Midwest this spring. I have already asked the Corps Districts that cover North Dakota to do as much advance preparation as possible and if the flooding is as severe as some are predicting, I will be calling on both of you for help during both the flood fight and the recovery.

Testifying for the Department of Interior will be: Anne Castle, Assistant Secretary for Water and Science, Department of the Interior.

Ms. Castle, Congratulations to you on your confirmation as Assistant Secretary for Water and Science. I look forward to working with you on many western water issues.

Michael L. Connor, Commissioner, Bureau of Reclamation.

Commissioner Connor, it is good to have you back with us.

As I am sure you are aware, I am quite passionate about issues concerning rural water supply, particularly on unmet promises from 50 years ago on the Garrison Diversion project. I am glad to see that your budget has provided a little more funding to address these long overdue promises.

Thank you all for appearing before us today.

As you know, this will be my last general budget oversight hearing of the Corps and the Bureau's budgets. The one constant in the Senate is change and assuming you stay in your positions, you will be testifying before a different Chairman next year.

When I assumed the Chairmanship of Energy and Water Subcommittee in January 2007, I was quite familiar with the work of both of your agencies in North Dakota from my many years in the Senate and the House.

However, upon becoming Chairman, I quickly realized the impacts that your programs have to the national economy.

More importantly, my colleagues quickly let me know how important your programs were to nearly all of them. It seemed they all had funding issues for on-going projects.

It appears that the administration's fiscal year 2011 budget will be no different in that regard.

The President has talked about an overall discretionary spending freeze for fiscal year 2011. That has translated into a 9.3 percent cut for the Corps budget and a 2 percent cut for the Bureau.

These are the wrong agencies to be cutting during the current economic situation. We should be increasing infrastructure spending now to boost the economy. The Recovery Act was a great shot-in-the-arm, but we need to build on that with more robust investments not return to underfunding our needs.

The Corps and the Bureau builds the water infrastructure that moves our Nation's cargo, reduces the impacts of flooding, provides irrigation water, hydropower and restores our environment.

Nearly all of their work is contracted to the private sector which means jobs for our citizens. Not only does the work of these agencies provide jobs now, the infrastructure that is constructed continues to benefit the economy for decades in the future which in turn creates more jobs.

Unfortunately, the budget request ignores this fact and reflects the consistent underfunding that we have seen in prior budgets.

The President's fiscal year 2011 budget for the Corps of Engineers proposes \$4.939 billion, which is \$506 million below the fiscal year 2010 enacted amount of \$5.445 billion.

Not only is the fiscal year 2011 amount less than what was enacted in fiscal year 2010, it is 4 percent below what the administration proposed for fiscal year 2010. When you look at the budget details on an account by account basis, the difference is more striking.

—General Investigations is down \$56 million from the current year.

—Construction, General is down \$341 million from the fiscal year 2010 enacted amount. The fiscal year 2011 request is even down from the administration's fiscal year 2010 proposal, yet the request manages to find \$29 million for two new construction projects.

—The Mississippi River and Tributaries account is down \$100 million from the current year.

—O&M is down \$39 million from the fiscal year 2010 enacted amount. O&M has been essentially flat for a number of years even though personnel, material, and equipment costs have continued to rise.

To provide current year levels for the Corps major accounts would require an additional \$536 million.

Secretary Castle and Commissioner Connor the two major project accounts for the Department of Interior under the jurisdiction of this subcommittee are the Central Utah Project Completion Act and Water and Related Resources for the Bureau of Reclamation. Your budgets are relatively flat when compared to fiscal year 2010.

The Central Utah Project Completion Account is proposed at \$1 million more than current year.

The Bureau of Reclamation is down \$23 million from the current year.

A flat budget is a declining budget for your agencies. Personnel, material and contract costs continue to increase, so you are accomplishing less work this year based on this budget request.

The needs for water and power in the West continue to rise along with the population increases in the western States.

I know that all of you as loyal members of the administration in your prepared remarks are going to tell us how responsible this budget request is for your agencies and how it meets the country's needs.

I know this because the last person that came to the Hill and actually told the truth about the administration's budget was fired. I don't want to see any of you fired so I will say what you can't.

Our national water resource needs continue to increase as our population grows and shifts around the country. However the Federal budget for these needs grows much more slowly, if at all.

In both agencies, budget development seems to be predicated on the notion that you can develop criteria to determine a finite group of "nationally important" projects.

I have heard the arguments that the projects funded are "national priorities" and that the metrics you develop allow you to make the "right" decisions about what should be funded. I am sure that all of you will make the same arguments in your testimony today.

However, the criterion seems to shift annually not only when we change administrations, it also happens within the same administration. It has happened in this administration.

For example, as I mentioned earlier, the Corps O&M budget for fiscal year 2011 is proposed at \$39 million less than the fiscal year 2010 enacted amount and \$143 million less than the administration proposed just last year.

This means either more work is being done with less money—not likely; maintenance costs have decreased—again, not likely; or periodic dredging costs for 2011 are drastically reduced over 2010—again, not likely.

The only conclusion left is that you have arbitrarily reduced the O&M account to meet a budget ceiling.

Another example is in the construction account. The budget proposes two new start projects while proposing to invest \$341 million less in the Construction, General account than was enacted in fiscal year 2010.

More surprising is that the fiscal year 2011 CG budget is \$28 million less than the administration proposed in their fiscal year 2010 budget. Yet there was room for two new construction projects. One of these new start projects is authorized at \$1.8 billion over a 10 year timeframe.

I have to wonder how this project will be shoehorned into the administration's out-year budget based on your recently delivered 5-year development plan.

The 2011 amount displayed in both the Base and Enhanced outlooks does not appear to accommodate this request with the other ongoing work. This makes me suspicious as to whether a funding stream for this project has been thought out or if this project was added for other reasons.

If I am suspicious of the basis for your new start criteria, I am downright skeptical of your other budgetary criteria.

A constant drumbeat of people who oppose projects added by Congress is that all of the projects that Congress adds are wasteful spending, but everything that is proposed by the administration is beyond reproach.

How can anyone make that determination? One certainly cannot tell from the budget justification documents.

Of the 95 projects proposed for the Corps Construction, General account only 49 have benefit to cost ratios. The other 46 have benefits that have been assumed to be greater than the costs; however we have no way of comparing one of these to another to determine if the proper choices were made. We are dependent on your metrics which, as I have noted, have a tendency to change.

For the 49 projects that have benefit to cost ratios, what are the metrics for substantial life savings benefits? One life? 10 lives? 100 lives?

Why is a benefit to cost ratio of 2.5 a better value for the Nation than a project with a benefit to cost ratio of 1.7? Shouldn't we be comparing excess benefits over cost if we are determining value?

We don't really have any way to determine if the metrics that you used to determine which projects to fund are the "best" metrics or are merely a convenience for hitting the budget amounts that were decided by OMB.

Despite what anyone may say, your metrics and criteria are no better than the criteria this subcommittee uses to develop its' annual spending recommendations.

Our decisions are generally based in law and longstanding policy understandings between the executive and legislative branch.

This subcommittee would never dismiss the President's budget request when trying to develop an appropriation bill.

However, projects that Congress believes are important that meet the legal criteria for Federal investment, but not the specialized criteria for your budget, are dismissed annually in your budget—as if they don't exist.

If they were considered, you would need to include the costs to bring these projects to some type of orderly conclusion.

An example is the Corps CG account. The administration's fiscal year 2011 CG proposal consists of 95 projects as opposed to the 258 projects funded in the fiscal year 2010 enacted amount.

I would remind you, as Congress has previously mentioned in law, that once the President signs the appropriations bill into law, all of the projects become the responsibility of the administration—not just the ones the administration supports.

I am pleased that you have provided budget justifications concurrent with the budget submission this year and that you have provided factsheets for those projects for which you did not budget but were funded in the previous year by Congress.

This is a step in the right direction. However, the costs of not continuing enacted projects should be addressed in your budget proposals.

To ignore them, as you and previous administrations have done and continue to do, is intellectual dishonesty and it keeps Congress and the public "in the dark" about the true costs and needs of your programs.

Finding a new and better prioritization system is not the answer to the problems of consistently underfunding infrastructure.

The only way to address this funding crisis is for the administration to provide more funding for these infrastructure investments.

Also I cannot stress enough that infrastructure spending means jobs, both now and in the future.

The decisions that the administration makes in their budget proposal generally form the basis for the annual spending plan that this subcommittee develops.

However, the subcommittee will have no choice but to make significant changes to the fiscal year 2011 spending plan to rectify some of the inequities in your budget proposal.

I look forward to the witness' testimony and will have some questions at the appropriate time.

SENATOR DORGAN. I want to mention to my colleagues that we have a fair number of senators who will be attending this morning, so what we will do is have seven-minute rounds of questions. Since the FAA reauthorization bill is on the floor of the Senate, which Senator Rockefeller and I are jointly handling, and because before I go to the floor of the Senate, I have to go to the Commerce Committee for a very brief appearance on the Comcast-NBC proposed merger, Senator Tester has agreed to take the chair when I have to depart in about an hour.

I appreciate my colleagues' being here. Senator Bennett, I believe, is stuck in traffic. That's an inelegant thing to say, but not unusual here in Washington, DC. But he's on his way, and when he comes, we will recognize him for an opening statement. What I'd like to do is offer opening statements, if we can make them very brief, to my colleagues. We'll then have the statements by the witnesses and then have ample time for questioning this morning.

Do any of my colleagues wish to make an opening statement?

Senator VOINOVICH. I'd like to.

Senator DORGAN. All right, Senator Voinovich.

STATEMENT OF SENATOR GEORGE V. VOINOVICH

Senator VOINOVICH. Thank you. I thank you for holding this hearing. This is my 2nd year on the Appropriations Committee, but I've been dealing with the Army Corps of Engineers' budget for 12 years, and I still shake my head at the inadequacy of this budget—it has been that way for almost ever—and a backlog of \$60 billion for unfunded Corps projects. The Corps has taken on not only the traditional projects, but now environmental restoration. And, Mr. Chairman, we've tried to figure out some priority or knock some of them off the list. We have never been successful in doing that because nobody wants a project off the list.

I'm particularly concerned about the Great Lakes. The Corps put together recommendations several years ago in terms of what should be done with the Great Lakes. And the fact is that they recommended some \$200 million a year to handle it, and the budget has always been about \$100 million. So, it's half of what's needed to get the job done.

For years, I've raised the issue of urgent needs facing the navigation system on the Great Lakes. Every year, hundreds of millions of tons of goods are transported through the lakes. Waterways and communities throughout the Great Lakes are tied to this travel. The Army Corps of Engineers estimates a backlog of 17 million cubic yards of dredging at commercial Great Lakes harbors and channels. This dredging backlog has been exacerbated by the historic low water levels, but the result is a negative impact on shipping. Several freighters have gotten stuck in Great Lakes channels. Ships have had to carry reduced loads, and some shipments have simply ceased altogether.

So, we benefit from the Great Lakes navigation system. One of the things that I don't understand is that, despite the significant backlog of Corps work, the Harbor Maintenance Trust Fund is approximately a \$4 billion surplus that is growing each year, \$4 billion. And, as we know, the money collected from that fund is intended for a specific use, maintaining harbors and channels; yet, OMB uses the surplus as cost savings. It's another one of those gizmos that you use trust funds to balance the budget.

So, I'm very, very concerned about it, and I think, Secretary Darcy, you know how concerned all of us are from the Great Lakes about something that some people snicker at, but it's these Asian carp. I just want to say that if they get into the Great Lakes, we're talking about losing a \$7 billion fishery. And as the former Mayor of Cleveland and Governor of Ohio and one who has worked to restore the lakes—I call it the second battle of Lake Erie—at this stage in my life, I do not want to see that happen. That is in addition to the fishery. That lake is responsible for recreation and all the other things. And if it goes that direction—we lose the fishery, it's going to have an indirect effect on everything else that happens on the Great Lakes. So, I hope you understand how serious we are about making sure that this doesn't happen.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Bennett.

OPENING STATEMENT OF SENATOR ROBERT F. BENNETT

Senator BENNETT. Thank you very much, Mr. Chairman. I apologize to you and the other members of the subcommittee for not gauging the traffic properly and not being here on time, but I appreciate the opportunity to comment here. We welcome Secretary Castle and Secretary Darcy and General Van Antwerp and Commissioner Connor.

And, Commissioner Connor, particularly, I want to say welcome to you. You've been very helpful to me over the years when you were on the Senate side of things, and I want to make sure we take this opportunity to acknowledge that.

I also want to recognize that Reed Murray, who is here, with the Central Utah project—that's a project, obviously, very important to my State. And I want to thank Reed for the great things your office is doing for water development in my State. In Utah, water is—the old line "Whiskey is for drinking and water is for fighting." And maybe we don't drink as much whiskey as some others, but we do fight over water. The other line I've heard is that it's better to be head of the ditch than head of the church, in terms of where you are with respect to water.

Now, I'm not going to reiterate the funding amounts for the various accounts. I agree with the chairman that these agencies are underfunded. My greatest concern with this budget is how it fails to address our Nation's aging infrastructure in an adequate fashion.

Many of the Bureau of Reclamation projects are over 100 years old. The Corps's infrastructure doesn't fare much better. Last summer, we had a canal in Logan, Utah—an irrigation canal—give way. The breach cost the lives of three people in the home beneath the canal, resulted in the destruction of homes and properties throughout the area, and while this is relatively small compared to Bureau and Corps projects, it is a sobering example of what could happen on a larger scale if we fail to protect our infrastructure adequately.

We addressed this issue last year, Mr. Chairman, in the omnibus public lands bill, which both you and I strongly supported, and we put in an aging infrastructure title that would allow the Bureau of Reclamation and water contractors to address these issues in a reasonable manner, and the President's budget includes no funding for this purpose whatsoever.

And I'm also concerned that this cost-share and the authority may be prohibitive for the project partners to afford. We need to continue to work to adequately address these issues before there is a major infrastructure failure.

Now, as I said, the Corps's infrastructure is in not much better shape. Levees constructed 50 or more years ago are not built to current design standards. And as FEMA puts requirements for levee recertification on local communities, it is costing local communities millions of dollars, and, in some cases, the levees that communities have depended upon no longer provide 100-year flood protection, which will mean a triggering of a remapping of the flood plain.

And another area that jumps out at me is the unbalanced focus—in my view, unbalanced—on environmental restoration, which will take up 31 percent of the Corps's construction budget, an allocation that comes at the expense of other projects that are in the traditional water resource missions of the Corps. For example, only 22 percent of the local—total construction budget goes to what the Corps defines as high-performance projects, also known as projects with high benefit-to-cost analysis. The project with the highest benefit-to-cost ratio of 22 to 1—that's the Sacramento River bank protection—received only \$10 million in this budget request. Now, theoretically, that means that, for a \$10 million investment, the Nation would get \$220 million in benefits. And the Everglades restoration project, on the other hand, gets \$180 million in this budget with no cost-benefit ratio listed.

So, \$10 million that, presumably—in actual fact, it doesn't all work out that way, but the analysis is that \$10 million is worth \$220 million, but instead of putting the kind of money that would produce the 22 to 1 ratio, we're saying no; we're only going to starve it—we're going to starve with only \$10 million, but we're going to put \$180 million into the Everglades, for which there is no analysis available.

Now, if the administration is going to underfund our national infrastructure to this extent, there must be a more transparent method of comparing the relative values of these projects so that we know that the taxpayers are not being short-changed. I'm concerned there is no transparency in these decisions. The Corps is using constantly changing criteria in order to accommodate to the annual budget numbers.

Now, Mr. Chairman, there's another issue I think needs to be addressed, and better addressed in this budget, and that's hydropower generation. This administration has made it clear they're strongly in favor of renewable energy, but every time we bring up hydropower as a source of renewable energy, there's dead silence. It's a clean energy source. It's available now. It continues to suffer from underfunding. And this budget, viewed with the 20 percent cut in water power activities in the Department of Energy, makes me wonder about the administration's commitment to all kinds of clean renewable energy or if there is a bias to particular kinds that seem to have constituencies in the political arena, regardless of what the science may say.

Both the Corps and Bureau hydropower plants are experiencing more and more unscheduled outages, and that's a demonstration of a lack of maintenance. And when these plants go down, energy has to be purchased from the market and other sources, and the purchase is almost always from a fossil fuel source. So, it's expensive and disruptive and, ironically, contributes to the use of fossil fuels in many circumstances, even while we're proclaiming that's what we're trying to get away from.

All right, EPAct requires the Secretary of the Interior and the Secretary of the Army and the Secretary of Energy to look at increasing power production at Federal hydro facilities. That's a study that was completed in May 2007. So, we should be moving on that. Reclamation found six sites that could demonstrate both physical and economic conditions sufficient to warrant further ex-

ploration for additional hydropower development. The Corps identified 58 sites on similar criteria, and these are not new dams; these are additional units that could be installed at existing hydropower facilities, and the transmission facilities are already connected to these sites. This is not a wind farm somewhere that's going to require tremendous wiring to get to it. The total capacity is estimated to be 1,230 megawatts. That's enough to serve roughly a million residences.

And there are opportunities to refurbish some facilities with existing hydropower to give us another 1,283 megawatts of generating capacity, and I don't understand why this administration is not pursuing that. This is clean energy without the limitation of the other sources. And to demonstrate that I'm serious about this, I introduced a bill earlier this year to investigate the feasibility of developing 50 megawatts of hydropower from the Diamond Fork Project at the existing dam.

Thank you, Mr. Chairman, for allowing me to raise these concerns, and, again, my apologies to the panel for my tardiness in coming here.

Senator DORGAN. Senator Bennett, thank you.

Before we hear from the witnesses, does anyone else have comments?

Senator TESTER. Yes, just real briefly, Mr. Chairman.

Senator DORGAN. Senator Tester.

STATEMENT OF SENATOR JON TESTER

Senator TESTER. First of all, thank you all for being here. I appreciate the work you do. Both the Bureau and the Corps are in the middle of addressing some aging water infrastructure issues in Montana and, I think, across the country.

That being said, as I look at the budget, there's several projects in Montana, a couple of water projects that the Bureau is working on, that has been cut from \$9 million to \$1 million. These are \$300 million water projects to service rural areas in the north central and northeastern part of the State. And I'm sure when the budget was put together—one was cut from \$9 million to \$1 million; the other was cut from \$8 million to \$2 million. I'm sure when this budget was put together they said, well, you know, there was Recovery Act dollars in one of these projects last year, so we can back them off.

I'll give you an example of one of them. When I first started my service in the State legislature, it was a \$100 million project. It's the same project. Now it's \$300 million. That's a little—that's 12 years ago. It has tripled in cost. What had happened, until we had the Recovery Act moneys, we weren't even keeping up with the cost of inflation with the money we were appropriating to it, and I'm afraid we're going back to that again.

These are important projects, and they need to be finished. In order to be finished, we need to have the resources. The Recovery Act was a blessing for them. And that money has been spent—it's being spent as we speak, and it's doing some great work. I would hope we could go back and address those again.

On the Army Corps side of things, the whole issue around levee certification is interesting as it applies to FEMA's flood insurance

programs. In Montana and in rural America, we have a struggling economy in rural America. It has been that way not just during this recession, but it has been that way for a while. And we've got small communities now that are being saddled with the goal of making sure these levees are safe. They don't have the population to spread out the cost of these expensive certifications, and it is putting them in one heck of a bind because when these don't get certified and the flood insurance rates go through the roof, it further puts them in a difficult situation. I will get into the specifics during my questions when it comes to the levees.

But I would just say we really need to be looking more down the road with our budget. That's what it should be as a sign of where we're going as a country, as far as these infrastructure projects. It has been said here before many of the projects we're dealing with are 100 years old—the Saint Mary's, for example. We need—there's so much work that needs to be done. The dikes and the levees that were built 50–60 years ago—I mean, we've got a lot of things to address. I'm not sure this budget gets it done.

So, with that, I want to thank you, Mr. Chairman.

Senator DORGAN. Anyone else?

Senator LANDRIEU. I'll wait until the questions.

Senator DORGAN. All right. Let me begin with Secretary Darcy. Madam Secretary, thank you for being with us.

I would say to all four witnesses that your full statements will be made a part of the permanent record, and you may summarize.

Secretary Darcy.

STATEMENT OF HON. JO-ELLEN DARCY

Ms. DARCY. Thank you. Mr. Chairman and distinguished members of the subcommittee, thank you for the opportunity to present the President's budget for the Civil Works Program of the Army Corps of Engineers for fiscal year 2011.

The fiscal year 2011 President's budget for the Civil Works Program is \$4.939 billion. The budget supports four principal objectives: funding construction of the highest performing water resources infrastructure investments that will provide the best return from a national perspective; supporting the Nation's navigation network by funding capital development achievable with current revenues; advancing aquatic ecosystem restoration efforts and continuing to meet the requirements of the Endangered Species Act; and emphasizing critical maintenance and operational reliability of the existing civil works infrastructure.

The budget focuses funding primarily on three main civil works program areas: commercial navigation, flood and coastal storm damage reduction, and aquatic ecosystem restoration. The budget supports hydropower, recreation, environmental stewardship, and water supply services at existing water resources projects owned or operated by the Corps. Finally, the budget provides for protection of the Nation's regulated waters and wetlands, cleanup of sites contaminated as a result of the Nation's early efforts to develop atomic weapons, and emergency preparedness and training.

In keeping with President Obama's commitment to limit the overall level of non-security discretionary spending, the level of funding in the 2011 civil works budget is a reduction from both the

2010 budget and the enacted 2010 appropriations. However, the 2011 funding level reflects a practical, effective, and sound use of the Nation's financial resources.

The Army continues to apply objective performance guidelines to many competing civil works construction projects in order to establish priorities among them and to guide the allocation of funds to high-performing ongoing projects and high-performing new construction starts. These guidelines emphasize investments that provide the best return from a national perspective in achieving economic, environmental, and public safety objectives.

The budget includes two construction new starts and several new initiatives. One of the construction new starts is the Louisiana Coastal Area Program, which will provide funding for the construction of projects coming out of the study by the same name, after they have favorably completed administration review. The other construction new start is a non-structural flood damage reduction projection in Onion Creek, Texas.

Within the Operation and Maintenance program, there is funding for a new Global Changes Sustainability program to assess the impacts on civil works projects of climate change, as well as impacts of shifting demographics, changing land use, and changing social values.

Understanding those impacts will enable the Corps to identify operational and other modifications to anticipate and respond to changing requirements to achieve and maintain sustainability.

Last year, the administration proposed legislation for a new user fee to increase revenue to the Inland Waterways Trust Fund, and that proposal remains available for consideration by Congress in support of the 2011 budget. The Army continues to work in partnership with the inland waterway stakeholders to identify priorities and an effective funding stream for inland waterway construction and rehabilitation for the next 20 years, which could be made possible by enactment of a new funding mechanism.

The budget provides \$180 million for the South Florida/Everglades Ecosystem Restoration program. This includes funding for continued construction of five significant restoration projects: Pica-yune Strand, Site One Impoundment, Indian River Lagoon South, Kissimmee River, and the C-111 project.

The budget also supports work on other major ecosystem-wide initiatives, in part through Federal inter-agency working groups headed by the Council on Environmental Quality. The budget includes a total of \$58 million for one such effort, the California Bay Delta restoration.

Within the ongoing Cultural Resources program, \$3 million is included to continue the Veterans Curation Project, which was initially funded through the American Recovery and Reinvestment Act and recently received the annual Chairman's Award from the Advisory Council on Historic Preservation. The Veterans Curation Project supports small curation laboratories in Augusta, Georgia; Saint Louis, Missouri; and Washington, DC—three sites with high populations of recently returning and wounded veterans. The veterans are hired into temporary positions and receive on-the-job training in curation of some of the backlog of archeological and historic properties that have come into the Corps's possession over the

years. This is an innovative approach to supporting returning and disabled veterans of all branches of the military service, with jobs and training in a variety of technical skills with broad applicability while benefiting the Civil Works program. I spoke at the opening of the lab in Augusta, and I was very moved by the stories of how this program has given hope to recovering veterans.

In conclusion, this is a frugal budget that reflects the priorities of a Nation that is both at war and successfully navigating its way out of economic upheaval. While this budget does not fund all of the good things that the Corps of Engineers is capable of doing, it will support very important investments that will yield long-term returns to the Nation's citizens.

PREPARED STATEMENT

Mr. Chairman and members of the subcommittee, I am proud to support the 2011 budget for the Army Civil Works program. Thank you.

Senator DORGAN. Secretary Darcy, thank you very much.
[The statement follows:]

PREPARED STATEMENT OF HON. JO-ELLEN DARCY

Mr. Chairman and distinguished members of the subcommittee, thank you for the opportunity to present the President's budget for the Civil Works Program of the Army Corps of Engineers for fiscal year 2011.

OVERVIEW

The fiscal year 2011 budget supports four principal objectives:

- Focus on the construction of those high performing projects that provide the best return from a national perspective in contributing to the economy, restoring aquatic ecosystems, and reducing risks to human safety;
- Support future capital investments for the inland waterways by proposing that Congress enact a new funding mechanism to raise the revenue needed to meet the authorized 50 percent non-Federal cost-share in a way that is efficient and equitable;
- Advance aquatic ecosystem restoration efforts, including restoration of Florida's Everglades, the California Bay Delta, and the Louisiana coast, as well as continuing to meet the requirements of the Endangered Species Act, particularly in the Columbia River and the Missouri River Basins; and
- Within the O&M program, give priority to investments in the operational reliability, safety, and availability of key existing Civil Works infrastructure.

The budget focuses funding for development and restoration of the Nation's water and related resources within three main Civil Works program areas: commercial navigation, flood and coastal storm damage reduction, and aquatic ecosystem restoration. Additionally, the budget supports hydropower, recreation, environmental stewardship, and water supply services at existing water resources projects owned or operated by the Corps. Finally, the budget provides for protection of the Nation's regulated waters and wetlands; cleanup of sites contaminated as a result of the Nation's early efforts to develop atomic weapons; and emergency preparedness and training. The budget does not fund work that should be the responsibility of non-Federal interests or other Federal agencies, such as wastewater treatment and municipal and industrial water treatment and distribution.

FISCAL YEAR 2011 DISCRETIONARY FUNDING LEVEL

The total new discretionary funding of \$4.939 billion in the fiscal year 2011 budget will keep the Civil Works program moving forward to help revitalize the economy and provide for restoration and stewardship of the environment. The budget also proposes cancellation of the unobligated balance of funding previously provided in the Mississippi River and Tributaries account for construction of the Yazoo Pumps project.

In keeping with President Obama's decision to constrain the overall level of non-security discretionary spending, the level of funding for the Civil Works program in

the 2011 budget is a reduction from both the 2010 budget and the enacted 2010 appropriations. However, the 2011 funding level reflects a practical, effective, and sound use of the Nation's resources and focuses on key investments that are in the best interest of the Nation.

Within the \$4.939 billion total, \$1.69 billion is budgeted for projects in the Construction account, and \$2.361 billion is budgeted for activities funded in the Operation and Maintenance (O&M) account.

The fiscal year 2011 budget also includes \$104 million for Investigations; \$240 million for Flood Control, Mississippi River and Tributaries; \$30 million for Flood Control and Coastal Emergency; \$193 million for the Regulatory Program; \$130 million for the Formerly Utilized Sites Remedial Action Program; \$185 million for the Expenses account; and \$6 million for the Office of the Assistant Secretary for Civil Works.

The fiscal year 2010–2014 Five Year Development Plan (FYDP) was recently provided to the relevant committees of Congress. Projections in the FYDP are formula driven. They do not represent budget decisions or budget policy beyond fiscal year 2010, but they can provide perspective on the Army Civil Works program and budget.

NEW INVESTMENTS IN FISCAL YEAR 2011

The Civil Works budget includes two construction new starts and several other new initiatives in the Investigations and O&M accounts.

In the Construction account, the budget includes \$19 million for a new start for construction of projects under the Louisiana Coastal Area program. These funds will be applied to construct authorized restoration projects with reports that have favorably completed executive branch review. The budget also includes \$10 million to initiate a nonstructural flood damage reduction project at Onion Creek, Lower Colorado River Basin, Texas.

In the Investigations account, two new national efforts are funded: \$2 million for a Water Resources Priorities Study—a high-priority evaluation of the Nation's vulnerability to flooding. The Investigations account also includes \$500,000 for continued support of the revised Principles and Guidelines to direct future planning for water resources projects, including development of detailed planning procedures to implement the revised Principles and Guidelines.

The O&M program includes \$10 million for a new Global Changes Sustainability program to assess the impacts of climate change on Civil Works projects, update drought contingency plans, enhance Federal collaboration, and increase partnerships with non-Federal stakeholders and programs. Understanding those impacts will enable the Corps to identify operational and other modifications to anticipate and respond to climate change. Also included in the O&M account is \$3 million to initiate a Coastal Data Information Program to provide long-term coastal wave observations nationwide, to develop tools for using wave and other data for managing coastal sediments, and to support sustainable coastal and navigation projects under a changing climate.

INLAND WATERWAYS USER FEE PROPOSAL

The fiscal year 2011 budget proposes to allocate \$158.1 million for capital investment (construction, replacement, rehabilitation, and expansion of projects) on the inland waterways, of which \$82.3 million would be derived from the Inland Waterways Trust Fund. Last year, the Army submitted proposed legislation to the Congress on behalf of the administration for a new user fee. That proposal is awaiting action by Congress and is reflected in the fiscal year 2011 budget. In addition, the Army continues to work with the inland waterway stakeholders to explore other possible options to achieve the purposes of this legislative proposal, which are to raise the needed revenue from the commercial users of these waterways and to do so in a way that is efficient and equitable. The administration has shown flexibility and is working to move the process forward. At this point, however, I would like to emphasize that neither the Corps nor the Army supports, or has accepted or endorsed, any particular out-year schedule or funding proposal for the inland waterways, or any alternative to the lock usage fee legislative proposal that Army submitted to Congress in May 2009.

AQUATIC ECOSYSTEM RESTORATION

The budget places priority on aquatic ecosystem restoration and provides \$180 million for the Corps for the South Florida/Everglades ecosystem restoration program. The budget includes funding for continued construction of five significant res-

toration projects in this program: Picayune Strand; Site One Impoundment; Indian River Lagoon South; Kissimmee River, and the C-111 (South Dade) project.

The budget also supports work on other major ecosystem-wide initiatives, such as the \$58 million for Corps' ecosystem restoration and other water resources studies and projects in the California Bay Delta, including: Coyote and Berryessa Creeks; Hamilton Airfield Wetlands Restoration; Napa River Salt Marsh Restoration; Sacramento-San Joaquin Delta Islands and Levees; and Santa Ana River Mainstem, a flood and coastal damage risk reduction construction project.

The budget increases funding by 44 percent over last year's budget for the Lower Columbia River Fish Mitigation project to mitigate the impact of Corps dams on migrating salmon. Nearly \$138 million will be used to construct bypasses, improve fish ladders and for other activities that support salmon habitat. Similarly the budget supports ongoing work on the Missouri Fish and Wildlife Recovery project with \$78 million to construct habitat and connect floodplains that had been degraded, for the benefit of the endangered pallid sturgeon and other species.

ONGOING PRIORITIES IN THE O&M ACCOUNT

Two particular ongoing activities in the O&M account merit special attention. First, the O&M account includes \$15 million for the expansion of the National Levee Inventory database to include available information on levees of other Federal agencies and all of the States. The Corps will work with stakeholders to facilitate their use of the Database for local levee safety programs. In addition, the Corps will continue development of a levee risk screening and classification process.

The budget for the Cultural Resources program in the O&M account is increased to \$5.5 million to include \$3 million to continue the Veterans Curation Project, which received funding in fiscal year 2009 from the American Recovery and Reinvestment Act (ARRA). The Veterans Curation Project temporarily employs and trains wounded and returning veterans in the curation of archeological and historic properties that have come into the Corps' possession over the years as a result of construction at water project sites around the country, thus advancing the Corps' curation program while providing employment and transferrable skills that improve future employment opportunities of the veterans who work in the labs.

PLANNING IMPROVEMENTS AND PERFORMANCE-BASED BUDGETING

Working through the Chief of Engineers, the Army continues to strengthen and improve the planning expertise of the Corps, including greater support for planning Centers of Expertise, better integration of project purposes, and greater reliability of cost estimates and schedules in both planning and programming processes.

The fiscal year 2011 budget continues the Army's commitment to a performance-based approach to budgeting for the Civil Works program. Competing investment opportunities for studies, design, construction, and operation and maintenance were evaluated using multiple metrics. The Army used and will continue to use objective, performance criteria to guide its recommendations on the allocation of funds.

The Army applied objective performance guidelines to establish priorities and guide the allocation of funds to high-performing ongoing construction projects and new construction starts. These guidelines focus on those investments within three main mission areas of the Corps that provide the best return from a national perspective in achieving economic, environmental, and public safety objectives. Similarly, the Army used objective performance criteria to allocate O&M funds in the fiscal year 2011 budget. The O&M criteria consider both the condition of the project and the potential consequences for project performance if the O&M activity were not undertaken in fiscal year 2011.

In fiscal year 2011 the Corps will focus efforts on developing new strategies, along with other Federal agencies and non-Federal project partners, to better manage, protect, and restore the Nation's water and related land resources, including floodplains, flood-prone areas, and related aquatic ecosystems. The Corps also will continue to pursue management reforms that improve project cost and schedule performance to ensure the greatest value from invested resources, while strengthening the accountability and transparency of the way in which taxpayer dollars are being spent.

AMERICAN RECOVERY AND REINVESTMENT ACT

The Corps continues the work funded in the ARRA. The act provided \$4.6 billion for the Civil Works program. That amount includes \$2 billion for Construction; \$2.075 billion for O&M; \$375 million for Mississippi River and Tributaries; \$25 million for Investigations; \$25 million for the Regulatory Program; and \$100 million for the Formerly Used Sites Remedial Action Program. The Corps has allocated ARRA

funds to more than 800 projects in 49 States, the District of Columbia, and Puerto Rico, and has completed 42 projects. The ARRA appropriations for Civil Works will create or maintain direct construction industry jobs and indirect jobs in firms supplying or supporting the construction and the businesses that sell goods and services to these workers and their families.

The ARRA-funded Civil Works projects provide important support to the Nation's small businesses in their economic recovery. Of the more than \$2.8 billion of ARRA funds obligated thus far (62 percent of the total \$4.6 billion), small business awards make up about 74 percent of the total contract actions and account for about 47 percent of the ARRA funds obligated.

Projects that received ARRA funds were selected on the basis of their long-term contribution to the Nation and their readiness for execution within the ARRA time-frame. The wide geographic distribution of ARRA funded projects helps to spread the employment and other benefits across the Nation. Funding also is distributed across Civil Works programs, including inland and coastal navigation, aquatic ecosystem restoration, flood risk management, hydropower, and more.

CONCLUSION

The administration has made rebuilding America's infrastructure a priority. Through resources provided for the Civil Works program in the President's budget for fiscal year 2011, the Army can help achieve this objective and help support the Nation's economy and environment. The Army is committed to applying 21st century technological advances to present day challenges, while protecting and restoring significant ecological resources.

Mr. Chairman, members of the subcommittee, I am proud to present the fiscal year 2011 budget for the Army Civil Works program. I look forward to working with this subcommittee in support of the President's budget. Thank you.

Senator DORGAN. General Van Antwerp.

STATEMENT OF LIEUTENANT GENERAL ROBERT L. VAN ANTWERP, CHIEF OF ENGINEERS

General VAN ANTWERP. Mr. Chairman and distinguished members of the subcommittee—

Senator DORGAN. Would you turn the microphone on, General? And move it just a bit closer?

General VAN ANTWERP. I think my light is on.

Mr. Chairman and distinguished members of the subcommittee, I appreciate your opening comments, Mr. Chairman, about flooding. I might address that very quickly before I talk about the budget.

We've got two areas—your area in North Dakota and another in Pennsylvania—and we're really gearing up right now. Just to give you a little idea, a lot of community involvement and all the Federal agencies, FEMA and everyone else are involved. We inventoried all of our pumps, our sand bags, polyurethane, and all the things that we'll need. I'm happy to report I think we have sufficient resources to fight this, but the early warning projections are for severe flooding. Yesterday, Major General Bill Grisoli who's behind me right here, is our deputy commanding general for civil works and emergency operations, had a total get-together with all of our folks that would be involved in this. And he'll be the first one to go, too, if we need to send him out there. We're honored and understand the concern; we're equally concerned as you are.

This budget is a performance-based budget. It makes the best use of available funds through a focus on projects and activities that provide the highest economic and environmental returns or address significant risk to human safety. The budget has 99 construction projects in it. It includes four in the Mississippi River and Tributaries account. There are 10 dam safety projects, 20 projects

that address significant risks to human safety, and 69 other projects.

The budget supports restoration of nationally and regionally significant aquatic ecosystems, emphasis on the Florida Everglades, Louisiana Coastal Area, and Hamilton Airfield in the San Francisco Bay region. The budget also supports the Columbia River and Missouri River fish projects to support the continued operation of our facilities, multi-use projects, to meet the requirements of the Endangered Species Act.

As soon as the Corps constructs a project, as you might imagine, our attention turns to operation and maintenance. Generally, with periodic maintenance, we can operate these facilities for many, many years. The average age of our 241 locks, by the way, is 58.3 years old.

The budget supports our continued stewardship in this infrastructure by focusing funding on our key infrastructure that has central importance to the Nation.

We support the President's commitment to continued sound development and management of the Nation's water resources.

Domestically, the Corps of Engineers personnel from across the Nation continue to respond to calls for help during national emergencies. The critical work they are doing will reduce the risk of damage from future storms to people and communities of this Nation.

Internationally, the U.S. Army Corps of Engineers continues to support the mission in Iraq and Afghanistan, and build foundations for democracy and freedom and prosperity.

I especially would like to recognize the many Corps civilians; we calculated that about 10,000 Corps civilians have deployed either to southeast Louisiana to respond to hurricanes or to Iraq and Afghanistan over the last 10 years. These wonderful, expeditionary—what I will call soldiers—civilians and soldiers provide their engineering expertise, quality construction management, and program and project management to many nations. The Corps of Engineers is actually involved in 34 other countries today.

PREPARED STATEMENT

In closing, I'd like to say the Corps is committed to staying at the leading edge of service to the Nation. We're committed to change that ensures an open, transparent, and performance-based civil works program.

Thank you, Mr. Chairman. I look forward to your questions.

Senator DORGAN. General, thank you very much.

[The statement follows:]

PREPARED STATEMENT OF LIEUTENANT GENERAL ROBERT L. VAN ANTWERP

Mr. Chairman and distinguished members of the subcommittee: I am honored to be testifying before your subcommittee today, along with the Assistant Secretary of the Army for Civil Works, the Honorable Jo-Ellen Darcy, on the President's fiscal year 2011 budget for the Civil Works Program of the United States Army Corps of Engineers.

My statement covers the following five topics:

- Summary of fiscal year 2011 Program Budget;
- Investigations Program;
- Construction Program;
- Operation and Maintenance Program; and

—Value of the Civil Works Program to the Nation's Economy and Defense.

SUMMARY OF FISCAL YEAR 2011 PROGRAM BUDGET

Introduction

The fiscal year 2011 Civil Works budget is a performance-based budget, which reflects a focus on the projects and activities that provide the highest net economic and environmental returns on the Nation's investment or address significant risk to human safety. The budget also proposes cancellation of the unobligated balance of funding in the Mississippi River and Tributaries account that was previously provided for construction of the Yazoo Pumps project. The Reimbursed Program funding is projected to involve an additional \$2.5 billion.

Direct Program

The budget reflects the administration's commitment to continued sound development and management of the Nation's water and related land resources. The budget incorporates objective performance-based metrics for the construction program, funds the continued operation of commercial navigation and other water resource infrastructure, provides significant funding for the regulatory program to protect the Nation's waters and wetlands, and supports restoration of significant aquatic ecosystems, with emphasis on the Florida Everglades, Louisiana coast, California Bay-Delta, and Columbia River & Missouri River restoration efforts. Additionally, it emphasizes the basic need to fund emergency preparedness activities for the Corps as part of the regular budget process.

Reimbursed Program

Through the Interagency and Intergovernmental Services Program we help non-DOD Federal agencies, State, local, and tribal governments, and other countries with timely, cost-effective implementation of their programs. Rather than develop their own internal workforce to oversee large design and construction projects, these agencies can turn to the Corps of Engineers, which has these capabilities. Such intergovernmental cooperation is effective for agencies and the taxpayer by using the skills and talents that we bring to our Civil Works and Military Program missions. The work is principally technical oversight and management of engineering, environmental, and construction contracts performed by private sector firms, and is totally financed by the agencies we service.

Currently, we provide reimbursable support for about 70 other Federal agencies and several State and local governments. Total reimbursement for such work in fiscal year 2011 is projected to be \$2.5 billion. The exact amount will depend on requests from the agencies.

INVESTIGATIONS PROGRAM

The budget for the Investigations program would enable the Corps to evaluate and design future projects that are most likely to be high-performing within the Corps three main mission areas: commercial navigation, flood and storm damage reduction, and aquatic ecosystem restoration. The budget includes \$104 million for these and related activities in the Investigations account and \$846,000 in the Mississippi River and Tributaries account.

CONSTRUCTION PROGRAM

Within available resources, the goal of the construction program is to produce high value to the Nation by delivering new, or replacing, rehabilitating, or expanding existing, flood damage reduction, environmental restoration, commercial navigation, or hydropower benefits that serve the Nation's water resource needs. Our fiscal year 2011 budget includes \$1.69 billion in discretionary funding in the Construction account and \$85.29 million in the Mississippi River and Tributaries account to further this objective. Consistent with this objective, the budget also gives priority to projects that address a significant risk to human safety.

Using objective performance measures, the budget allocates funding to 99 construction projects, including 4 Mississippi River and Tributaries projects, 10 dam safety assurance, seepage control, and static instability correction projects, 20 projects that address a significant risk to human safety, and 69 other projects. This program also includes, for example, significant funding for our efforts in the Columbia River Basin and Missouri River Basin to support the continued operation of Corps of Engineers multi-purpose projects by meeting the requirements of the Endangered Species Act.

Performance measures, which the Corps uses to establish priorities among projects, include the benefit-to-cost ratios for projects with economic outputs; and,

for aquatic ecosystem restoration projects, the extent to which the project cost-effectively contributes to the restoration of a significant aquatic ecosystem. The selection process also gives priority to dam safety assurance, seepage control, static instability correction, and to projects that address a significant risk to human safety. Under each of these criteria, resources are allocated based on performance. This approach significantly improves the realization of benefits to the Nation from the Civil Works construction program and will improve overall program performance by allowing the Nation to realize the benefits of the projects with the best net returns (per dollar invested) sooner.

OPERATION AND MAINTENANCE PROGRAM

The facilities owned and operated by, or on behalf of, the Corps of Engineers are aging. As stewards of this infrastructure, we are working to ensure that its key features continue to provide an appropriate level of service to the Nation. Sustaining such service poses a technical challenge in some cases, and proper maintenance is becoming more expensive in some cases as infrastructure ages.

The Operation and Maintenance (O&M) program for the fiscal year 2011 budget includes \$2.361 billion, and an additional \$153.864 million under the Mississippi River and Tributaries program, with a focus on the maintenance of key commercial navigation, flood and storm damage reduction, hydropower, and other facilities. Specifically, the operation and maintenance program supports completed works owned or operated by the Corps of Engineers, including administrative buildings and laboratories. Work to be accomplished includes dredging, repair, aquatic plant control, removal of sunken vessels, monitoring of completed coastal projects, and operation of structures and other facilities, as authorized in the various River and Harbor, Flood Control, and Water Resources Development Acts.

One of the contributions the Civil Works program can make to the Nation is to support and create opportunities for returning and wounded veterans. Through continued funding of the Veterans Curation Project as part of the Cultural Resources program, the Corps can provide such support in ways that directly benefit the Civil Works program by addressing the backlog of historic properties needing curation, while also benefiting returning and wounded veterans.

VALUE OF THE CIVIL WORKS PROGRAM TO THE NATION'S ECONOMY AND DEFENSE

We are privileged to be part of an organization that directly contributes to the President's priorities to secure the homeland and to revitalize the economy.

The way in which we manage our water resources can improve the quality of our citizens' lives. It has affected where and how people live and influenced the development of this country. The country today seeks economic development as well as the protection of environmental values.

Corps of Engineers personnel from across the Nation continue to respond to the call to help during national emergencies, such as hurricanes and the recent earthquake in Haiti. The critical work they are doing reduces the risk of damage to people and communities.

Research and Development

Civil Works Program research and development provides the Nation with innovative engineering products, some of which can have applications in both civil and military infrastructure spheres. By creating products that improve the efficiency and competitiveness of the Nation's engineering and construction industry and providing more cost-effective ways to operate and maintain infrastructure, Civil Works program research and development contributes to the national economy.

The National Defense

Internationally, the U.S. Army Corps of Engineers continues to support the mission to help Afghanistan build foundations for democracy, freedom and prosperity.

I also want to recognize the many Corps of Engineers civilians—each of whom is a volunteer—and soldiers who are providing engineering expertise, quality construction management, and program and project management in other nations. The often unsung efforts of these patriotic men and women contribute daily toward this Nation's goals of restoring the economy, security, and quality of life for all.

In Afghanistan, the Corps is spearheading a comprehensive infrastructure program for the Afghan national army, and is also aiding in important public infrastructure projects.

CONCLUSION

The Corps of Engineers is committed to staying at the leading edge of service to the Nation. We are committed to change that ensures an open, transparent, and performance-based Civil Works Program.

Thank you, Mr. Chairman and members of the subcommittee. This concludes my statement.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

STATEMENT OF ANNE CASTLE, ASSISTANT SECRETARY FOR WATER AND SCIENCE

Senator DORGAN. Secretary Castle, you may proceed. Thank you for being here.

Ms. CASTLE. Thank you. Good morning, Chairman Dorgan and Senator Bennett and members of the subcommittee. Thanks for the opportunity to be here today in support of the President's 2011 budget for the Bureau of Reclamation and the Central Utah Project Completion Act.

With me is Mike Connor, the Commissioner of Reclamation. And, as Senator Bennett noted, Reed Murray is here, the Director of the Central Utah Project Completion Act Office. He will be here and available if you have any questions about that program.

The Department of the Interior's people and lands and programs touch virtually every American. It's our job to protect natural resources and our country's cultural heritage, and we have trust responsibility for all American Indians and Native Alaskans. We truly are the Department of America.

The Department's 2011 budget focuses on six priorities: implementing a new energy frontier, climate change adaptation, tackling our country's water challenges, protecting our treasured landscapes, empowering Native American communities, and engaging our youth in natural resources.

I'm going to focus today on one of the programs that seeks to tackle our water challenges, and that's our new WaterSMART program. That project was launched just 2 weeks ago, and it implements a sustainable water strategy for the Department of the Interior. WaterSMART stands for Sustain and Manage America's Resources for Tomorrow. And we're doing it; we're implementing that program because we simply have to focus on a sustainable water strategy for this country. Our water supply-and-demand equation is out of balance, and we need a national commitment to address that imbalance. We have the imbalance because of a variety of factors—population growth, climate change impacts on water supplies, increased recognition of the need for water for ecosystem sustainability, and increased need for water because of increased domestic energy production.

The WaterSMART program is designed to help correct that supply-and-demand imbalance. The program includes coordination of the water sustainability and conservation efforts of all the agencies within the Department of the Interior and also of our Federal and State and private partners, and that includes a focus on the energy-water nexus, so that we'll recognize the water demands of different types of energy development projects and take those into ac-

count and also recognize the opportunities for saving energy through water conservation.

We'll have an Internet-based clearinghouse for best practices and incentives and the most cost-effective conservation and recycling technologies. We'll coordinate with the Department of the Interior's climate change programs, and we have a water footprint reduction program for Interior facilities that will achieve the President's goal of reducing overall water consumption within the Federal agencies.

The 2011 budget request includes \$72.9 million for the WaterSMART program. That's an increase of over \$36 million over 2010 for those various different component programs. Sixty-two million is for the Bureau of Reclamation's WaterSMART programs, and those include its basin studies, West-wide water risk assessments, and its cost-share grant programs for water efficiency and water recycling and reuse projects.

Another \$10.9 million funds the USGS water availability and use assessment. That was what we have known as the Water Census, and that program implements the provisions of the Secure Water Act in Public Law 111-11.

The overall budget request for the Bureau of Reclamation is \$1.02 billion. Commissioner Connor will be discussing the details of the Reclamation request, but I'll just emphasize that this budget proposal is designed to promote reliable and sustainable water supplies, and provide them in an economically and environmentally sound manner.

The 2011 budget request for the Central Utah Project Completion Act is \$43 million. That's \$1 million more than in 2010. That funding provides for the continued design and construction of the Utah Lake system, and it also increases the funding for mitigation and conservation projects.

This 2011 Interior budget represents our best effort to work within the tough economic times that are facing our country, to do our part to reduce the spending deficit but still implement the core mission and the priorities of the Department.

PREPARED STATEMENT

I'd like to express my appreciation for the very strong support that this subcommittee has shown for both the Bureau of Reclamation and the Central Utah Project. And I'd be happy to answer any questions.

Senator DORGAN. Thank you very much.

[The statement follows:]

PREPARED STATEMENT OF ANNE CASTLE

Mr. Chairman, Mr. Bennett, and members of this subcommittee, I am pleased to appear before this subcommittee today to discuss the President's fiscal year 2011 budget for the Department of the Interior and to update you on progress in implementing our fiscal year 2010 programs.

The Department of the Interior's mission is complex and multifaceted. Our programs and mission stretch from the North Pole to the South Pole and across 12 time zones, from the Caribbean to the Pacific Rim. Our extensive mandate rivals any Government agency in its breadth and diversity—and its importance to the everyday lives of Americans.

Interior manages 500 million acres or about 1 in every 5 acres in the United States, including 392 national park units, 551 wildlife refuges, the 27 million-acre National Landscape Conservation System, and other public lands. These places are

treasured landscapes and serve as economic engines for tourism and growth opportunities for recreation, wildlife conservation, and responsible resource use.

The Department's public lands and 1.7 billion acres on the Outer Continental Shelf supply nearly one-third of the Nation's domestic energy production. These resources are vital to the Nation's energy security and provide economic returns to the Nation. In fiscal year 2011, an estimated \$14.0 billion in revenues will be generated from these lands and waters.

The Department fulfills its special responsibilities to Native Americans managing one of the largest land trusts in the world including over 55 million acres held in trust for Indian Tribes and individual Indians, over \$3.6 billion of funds held in over 2,700 tribal trust accounts, and over 380,000 open individual Indian Money accounts. The Bureau of Indian Education school system provides services to approximately 42,000 students in 23 States attending 183 elementary and secondary schools and dormitories, and supports 30 tribally controlled community colleges, universities, and post-secondary schools.

THE FIRST YEAR

In January 2010, President Obama and Secretary Salazar marked their first anniversary by recognizing the achievements of Interior's 70,000 employees, including:

- Restoring the Everglades—beginning construction of the 1-mile bridge on the Tamiami Trail and breaking ground on the Picayune Strand Restoration project in the Everglades in Florida—to restore water flows and revive 55,000 acres of wetlands for wildlife habitat;
- Negotiating a settlement of the long-running and highly contentious *Cobell v. Salazar* class-action lawsuit—resolving trust accounting and management issues after 14 years;
- Advancing renewable energy development—establishing renewable energy coordination offices in four States and teams in six States to facilitate renewable energy production on public lands and issuing four exploratory leases for renewable wind energy production on the OCS;
- Moving forward to invest \$3.0 billion available from the American Reinvestment and Recovery Act in facility renovation and energy efficiencies, habitat restoration, increasing water supplies and water conservation, supporting renewable energy development, and reducing human hazards;
- Restoring confidence and accountability in our energy programs by beginning an orderly termination of the Royalty-in-Kind program and reforming the management of onshore oil and gas resources;
- Coming to the aid of drought-stricken California with emergency aid and infrastructure investments;
- Expanding opportunities for youth—employing 8,200 young adults in 2009;
- Opening the crown of the Statue of Liberty for public access—the crown has been closed to the public since 9/11;
- Ending a stalemate at the Flight 93 National Memorial—completing the acquisition of land in cooperation with willing sellers and clearing the way for construction of a memorial to honor the Nation's heroes;
- Delisting the brown pelican—a case of complete recovery for a species that was first listed as endangered in 1970;
- Increasing transparency—reversing and withdrawing flawed oil and gas leases with potential impacts to national parks in Utah and oil shale research, development, and demonstration leases that may have shortchanged taxpayers; and
- Helping to negotiate a collaborative solution that would end decades of conflict and potentially allow for the restoration of the Klamath River Basin in California and Oregon.

OVERVIEW OF THE FISCAL YEAR 2011 BUDGET

Interior's 2011 budget reflects an aggressive agenda in the context of challenging fiscal times. The 2011 Interior budget request for current appropriations is \$12.2 billion. Permanent funding that becomes available as a result of existing legislation without further action by the Congress will provide an additional \$5.8 billion, for budget authority totaling \$18.0 billion for Interior in 2011.

The request for the Bureau of Reclamation and the Central Utah Project Completion Act, funded under the jurisdiction of this subcommittee, is \$1.1 billion. The fiscal year 2010 Reclamation discretionary budget request is \$1.02 billion in current appropriations and the request for the Central Utah Project is \$43.0 million.

CLIMATE CHANGE ADAPTATION

Resource managers consider climate change to be the single most challenging issue they face. In order to equip them with the tools and strategies they need, Interior's Climate Change Adaptation initiative will investigate the causes and formulate solutions to mitigate climate impacts to lands, waters, natural and cultural resources. As the pre-eminent manager of lands and resources, Interior will leverage its experience and expertise in partnership with other governmental and non-governmental entities. Interior's Climate Science Centers and Landscape Conservation Cooperatives (LCC) will conduct and communicate research and monitoring to improve understanding and forecasting for those natural and cultural heritage resources that are most vulnerable to climate change impacts.

The Department's High Priority Performance Goal for Climate Change Adaptation is to identify areas and species most vulnerable to climate change and begin implementing comprehensive adaptation strategies by the end of 2011. Beginning with the 2011 budget, Reclamation will identify dedicated climate change funding, including an increase of \$3.0 million for its Basin Studies Program. Through the Basin Studies Program, Reclamation will work with State and local partners to analyze the impacts of climate change on water and power operations throughout basins in the Western States, and will identify options to mitigate or adapt to those impacts.

WATERSMART

The 2011 budget proposes a sustainable water strategy to assist local communities to stretch water supplies and improve water management. A High Priority Performance Goal is established to increase water supply for agricultural, municipal, industrial, and environmental uses in the western United States up to 350,000 acre-feet by the end of 2011 through conservation programs including water reuse and recycling and WaterSMART (formerly Challenge) grants.

The budget for the WaterSMART program—Sustain and Manage America's Resources for Tomorrow—includes \$72.9 million, an increase of \$36.4 million over the 2010 enacted level for sustainability programs in Reclamation and USGS. Reclamation will use \$62.0 million, an increase of \$27.4 million, to improve water management by encouraging voluntary water banks; reducing demand; implementing water conservation and water reclamation and reuse projects; and taking action to improve energy efficiency and reduce environmental conflicts. The USGS will use \$10.9 million, an increase of \$9.0 million, for a multi-year, nationwide water availability and use assessment program.

TREASURED LANDSCAPES

The 2011 budget includes funding for an increased effort by Reclamation to conduct studies, projects, and other efforts in the California Bay-Delta. These activities will support the December 22, 2009 Bay-Delta Interim Action Plan, investing in short and long-term actions for sustainable water and ecosystem restoration. This request will fund habitat restoration efforts, the development of fish screens and fish ladders, efforts to eradicate or mitigate invasive species, various water quality and quantity studies and assessments, and other efforts.

SUPPORTING TRIBAL NATIONS

The 2011 budget for Reclamation contains funding in support of tribal nations through projects such as the Animas-La Plata project to continue implementation of the Colorado Ute Settlement Act and funding for the Navajo-Gallup Water Supply project.

CONCLUSION

Thank you for the opportunity to testify on behalf of the President's fiscal year 2011 budget request for the Department of the Interior. I want to reiterate my appreciation for the long-standing support of this subcommittee. Our fiscal year 2011 budget will—in its entirety—make a dramatic difference for the American people. We have a tremendous opportunity to improve the future for our children and grandchildren with wise investments in clean energy, climate impacts, treasured landscapes, our youth, and the empowerment of tribal nations. This concludes my overview of the fiscal year 2011 budget proposal for the Department of the Interior. I am happy to answer any questions that you may have.

Senator DORGAN. Commissioner Connor.

STATEMENT OF MICHAEL L. CONNOR, COMMISSIONER

Commissioner CONNOR. Yes, sir. Thank you, Chairman Dorgan, Senator Bennett, and members of the subcommittee, for the opportunity to discuss the Bureau of Reclamation's 2011 budget.

With me today is Bob Wolf, who is the Director of our Program and Budget Office at the Bureau of Reclamation.

As noted by Secretary Castle, the fiscal year 2011 discretionary request for Reclamation is \$1.02 billion. Overall, the budget reflects a set of wide-ranging activities and initiatives that support Reclamation's mission. According to a recent departmental economic analysis, Reclamation's mission is to supply water, generate power, and provide recreation opportunities to millions of Americans. It supports over 260,000 jobs on an annual basis and \$39.5 billion in economic activity.

At its core, however, the goal of Reclamation's budget is simply to promote certainty and sustainability in the use of limited water resources, whether it is for agricultural, municipal, industrial, environmental, or power-generation purposes. Certainty and sustainability require Reclamation to take action on many fronts, and our budget proposal was developed with that principle in mind. Through these efforts, we believe we can continue to provide the economic benefits I just described.

Secretary Castle identified six priorities that are focal points of the Department's fiscal year 2011 budget. Very briefly, I want to speak about several of those items.

The first is tackling the Nation's water challenges and the New Energy Frontier. Addressing water challenges and energy needs starts with operating, maintaining, and improving the condition of our existing facilities. Accordingly, the 2011 budget requests a total \$424 million for facility operations, maintenance, and rehabilitation activities. This amount represents almost one-half—46 percent—of the Water and Related Resources account. The remaining balance of that account is used for water, energy, land, and fish and wildlife resource management activities, which amount to \$490 million in total, or 54 percent of the remaining part of the Water and Related Resources account.

Included within this \$490 million allocation is the WaterSMART program that was just described in detail. As noted, WaterSMART includes a specific focus on energy-water issues. In addition to promoting energy efficiency through water conservation, Reclamation will be working with our numerous partners to facilitate new renewable energy generation development in association with Reclamation facilities and its operations.

CLIMATE CHANGE ADAPTATION

In the area of climate change, Reclamation will do its part to assist the Department in implementing an integrated strategy to better understand and respond to climate change impacts on water and associated resources.

As identified in our budget documents, the Department will be establishing Climate Science Centers (CSCs), Landscape Conservation Cooperatives (LCCs), and a Climate Effects Network. Reclamation's 2011 budget includes an increase of \$3 million for Reclamation's Basin Studies program to implement West-wide risk assess-

ments and to establish two LCCs. Reclamation's Science and Technology program will also devote \$4 million in support of the science agenda being carried out by the Climate Science Centers. This funding represents a critical investment that will help our stakeholders better understand and plan for a future impacted by increasing temperatures.

TREASURED LANDSCAPES AND RESTORING RIVERS

Protecting the Nation's treasured landscapes is another departmental priority, and it is imperative that Reclamation do its share. First, maintaining our ability to deliver water and generate power requires protecting and restoring the aquatic and riparian environments affected by our operations. Beyond that, restoring the health of our rivers will help avoid future conflicts and provide more flexibility in addressing the challenges presented by drought, increasing populations, increasing energy demand, environmental needs, depleted aquifers, and a changing climate. Included within the Restoring Rivers program are our endangered species recovery programs, which are an increasing part of Reclamation's budget.

SUPPORTING TRIBAL NATIONS

The final priority I want to briefly discuss is Reclamation's support for tribal nations. The 2011 budget continues this support through our ongoing efforts to implement Indian water rights settlements. Included in the request is \$12.5 million in support of the Animas-La Plata project and the Shiprock Pipeline, which are the critical items in the Colorado Ute Settlement Act amendments. Those are anticipated to be completed in 2013.

The request also includes \$10 million for the Navajo-Gallup Water Supply Project, a key element of the Navajo Nation Water Rights Settlement in the San Juan River basin in New Mexico.

There's also \$4 million for the Soboba Water Rights Settlement to complete funding for the United States' share of constructing, operating, and maintaining the basin recharge project that's central to that settlement.

And outside settlements, Reclamation is addressing tribal needs through its rural water program. Sixty-two million dollars is requested for this program to continue the construction of authorized rural water projects, several of which benefit tribal nations in the Great Plains and Upper Colorado River regions.

Mr. Chairman, please allow me to express my sincere appreciation for the continued support that this subcommittee has provided the Bureau of Reclamation. I stand ready to answer questions at the appropriate time.

[The statement follows:]

PREPARED STATEMENT OF MICHAEL L. CONNOR

Thank you, Mr. Chairman, Mr. Bennett and members of the subcommittee, for the opportunity to discuss with you the President's fiscal year 2011 budget request for the Bureau of Reclamation. With me today is Bob Wolf, Director of Program and Budget.

I appreciate the time and consideration this subcommittee gives to reviewing and understanding Reclamation's budget and its support for the program. Reclamation works hard to prioritize and define our program in a manner that serves the best interest of the public who rely on Reclamation for their water and power.

Our fiscal year 2011 request continues support for activities that deliver water and generate hydropower, consistent with applicable State and Federal law, in an environmentally responsible and cost-effective manner.

The budget continues to emphasize working smarter to address the water needs of a growing population in an environmentally responsible and cost-efficient manner; and assisting States, tribes, and local entities in solving contemporary water resource challenges. It also emphasizes the operation and maintenance of Reclamation facilities in a safe, efficient, economic, and reliable manner; assuring systems and safety measures are in place to protect the public and Reclamation facilities. Funding for each project or program within Reclamation's request is based upon administration, departmental, and Bureau priorities. Key focus areas include Water Conservation, Climate Change Adaptation and Renewable Energy, Restoring Rivers, and supporting tribal nations.

Reclamation's 2011 budget request is \$1.1 billion, which includes \$49.9 million for the Central Valley Project Restoration Fund (CVPRF). This request is offset by discretionary receipts in the CVPRF, estimated to be \$49.6 million. The request for permanent appropriations in 2011 totals \$167.0 million.

WATER AND RELATED RESOURCES

The 2011 budget request for Water and Related Resources, Reclamation's principal operating account, is \$913.6 million. The request includes a total of \$489.9 million for water and energy, land, and fish and wildlife resource management and development activities. Funding in these activities provides for planning, construction, water conservation activities, management of Reclamation lands including recreation, and actions to address the impacts of Reclamation projects on fish and wildlife.

The request also provides a total of \$423.7 million for facility operations, maintenance, and rehabilitation activities. Providing adequate funding for these activities continues to be one of Reclamation's highest priorities. The Bureau continues to work closely with water users and other stakeholders to ensure that available funds are used effectively. These funds are used to allow the timely and effective delivery of project benefits; ensure the reliability and operational readiness of Reclamation's dams, reservoirs, power plants, and distribution systems; and identify, plan, and implement dam safety corrective actions and site security improvements.

HIGHLIGHTS OF THE FISCAL YEAR 2011 REQUEST FOR WATER AND RELATED RESOURCES

I would like to share with the subcommittee several highlights of the Reclamation budget including an update on the WaterSMART (Sustain and Manage America's Resources for Tomorrow) Program and Interior's establishment of a High Priority Performance Goal target to enable capability to increase available water supply for agricultural, municipal, industrial and environmental uses in the western United States by 350,000 acre-feet by the end of 2011.

WaterSMART Program.—The request focuses resources on the Department of the Interior's WaterSMART program. The program concentrates on expanding and stretching limited water supplies in the West to reduce conflict, facilitate solutions to complex water issues, and to meet the growing needs of expanding municipalities, the environment, and agriculture. The U.S. Geological Survey is a partner in WaterSMART.

The Department plays an important role in providing leadership and assistance to States, tribes, and local communities to address these competing demands for water and to be more energy efficient in the operations of its facilities. Reclamation is proposing to increase its share of the WaterSMART Program by \$27.4 million over the fiscal year 2010 enacted level for total funding of \$62.0 million. The three ongoing programs include: the WaterSMART (formerly the Challenge) grant program funded at \$27.0 million; the Basin Study program funded at \$6.0 million; and the title XVI Water Reclamation and Reuse program funded at \$29.0 million. Through these programs, Reclamation will provide competitive grants for water marketing and conservation projects; implement basin-wide planning studies that will help identify the impacts of climate change, identify potential adaptation measures and address comprehensive water supply and demand in the West; and continue funding of water reuse and recycling projects.

Other Significant Programs and Highlights Include

Climate Change Adaptation and Renewable Energy.—The Department is implementing an integrated strategy for responding to climate change impacts on the resources managed by the Department, through the establishment of DOI Climate Science Centers (CSC), Landscape Conservation Cooperatives (LCC) and a Climate

Effects Network. The 2011 budget requests an increase of \$3.0 million for use within Reclamation's Basin Studies program for total funding of \$6.0 million to implement West-wide climate change risk assessments. Reclamation will take the lead to coordinate work at two LCCs. Reclamation's Science and Technology program will devote \$4.0 million to support scientific work through the Department's CSCs. Reclamation is also assessing and implementing new renewable energy generation development in association with Reclamation facilities in cooperation with other Federal and State agencies, water users, and private sector entities through its Power Program Service program.

Restoring Rivers.—In order to best maintain Reclamation's ability to meet its core mission goals of delivering water and generating hydropower, a growing part of its mission must focus on the protection and restoration of the aquatic and riparian environments influenced by its operations. This growing focus area will help Reclamation better balance its environmental mission with its role as a water supplier and power generator, thus better positioning Reclamation to address the ongoing challenges presented by drought, climate change, increasing populations, the growing water demand associated with energy generation, and environmental needs. Reclamation's Restoring Rivers agenda involves a large number of activities, including its Endangered Species Act recovery programs.

The 2011 request provides \$171.7 million for operating, managing and improving California's Central Valley Project. This amount includes \$39.9 million for the CVP, Sacramento River Division, Red Bluff pumping plant, which will be constructed to facilitate passage for threatened fish species, as well as providing water deliveries. The American Recovery and Reinvestment Act of 2009 also provided \$109.8 million for the Red Bluff pumping plant. The funding for CVP also includes \$11.8 million for the Trinity River Restoration program that includes development of a comprehensive monitoring and adaptive management program for fishery restoration and construction of channel rehabilitation projects at various sites along the Trinity River. This request includes \$21.7 million for the CVP Replacements, Additions, and Extraordinary Maintenance program, for modernization, upgrade, and refurbishment of facilities throughout the Central Valley.

The request includes \$25.3 million for Lower Colorado River Operations to fulfill the role of the Secretary as water master for the Lower Colorado River. The request provides funding for management and oversight of both the annual and long-range operating criteria for Colorado River reservoirs; water contract administration; and implementation of the Lower Colorado River Multi-Species Conservation program. The Bureau of Reclamation remains committed to maximizing efficient ways to deliver water under its contracts and to conserve water for multiple uses, including endangered species protection.

The budget requests \$23.7 million for Endangered Species Act Recovery Implementation programs. The request includes \$12.7 million in the Great Plains Region to implement the Platte River Endangered Species Recovery Implementation program, based upon approval of the program by the Secretary and the Governors of Colorado, Nebraska, and Wyoming in late 2006 and authorized by the Consolidated Natural Resources Act of 2008. Implementation of this program provides measures to help recover four endangered or threatened species, thereby enabling existing water projects in the Platte River Basin to continue operations, as well as allowing new water projects to be developed in compliance with the Endangered Species Act. It also provides an increase of \$4.9 million for a total of \$8.4 million for the Upper Colorado River Endangered Fish Recovery program, which was established in January 1988, to provide habitat management, development and maintenance; augmentation and conservation of genetic integrity; and conservation of other aquatic and terrestrial endangered species. The increase will fund construction of a system that automates canal operations to conserve and redirect water for instream flows.

The Klamath project request is \$22.5 million and includes funds for studies and initiatives related to improving water supplies to meet the competing demands of agricultural, tribal, wildlife refuge, and environmental needs. Key areas of focus include continuing a water bank; making improvements in fish passage and habitat; taking actions to improve water quality; developing a basin-wide recovery plan; increasing surface and groundwater supplies; and continuing coordination of Reclamation's Conservation Improvement program.

The Klamath Dam Removal and Sedimentation Studies are being conducted as a result of negotiations initiated in 2005 and completed in 2010 regarding restoration of the Klamath River. Study results will be used to inform a Secretarial Determination to decide if removing PacifiCorp's four dams on the Lower Klamath River is in the public interest and advances restoration of the Klamath River fisheries. The Reclamation request includes \$5.0 million to further assess the costs and benefits of removing the dams. The Fish and Wildlife Service, funded under the Interior, En-

vironment, and Related Agencies appropriations subcommittee, also has \$2.0 million in its request to support these studies.

The Middle Rio Grande project request is \$25.1 million and will continue funding of endangered species activities and Reclamation's participation in the Middle Rio Grande Endangered Species Act Collaborative program. Funding of the repair of priority river levee maintenance sites is also included.

The Yakima River Basin Water Enhancement Project request is \$12.4 million, which will continue funding grants to Benton and Roza Irrigation Districts and Sunnyside Division Board of Control, to implement conservation measures and monitor the effects of those measures on the river diversions.

Supporting Tribal Nations.—The fiscal year 2011 Reclamation budget supports tribal nations through a number of projects. The request includes \$12.5 million for the Animas-La Plata project to continue implementation of the Colorado Ute Settlement Act. Project completion is anticipated in 2013, and 2011 funding will provide for directional drilling and pipeline construction on the Navajo Nation Municipal Pipeline and the continued filling of Lake Nighthorse.

The request includes \$10.0 million for the Navajo-Gallup Water Supply Project, a key element of the Navajo Nation Water Rights Settlement on the San Juan River in New Mexico. The project will provide a reliable and sustainable municipal, industrial, and domestic water supply from the San Juan River to 43 Chapters of the Navajo Nation.

The request includes \$4.0 million for the Soboba Water Rights Settlement Project to complete funding for the payment or reimbursement for constructing, operating, and maintaining the portion of the basin recharge project that the United States is responsible for under the Settlement Agreement.

The 2011 Reclamation budget requests \$62.0 million for on-going authorized rural water projects. The projects that benefit tribal nations include Mni Wiconi, the rural water component of the Garrison Diversion Unit; Fort Peck Reservation/Dry Prairie; Jicarilla Apache Reservation; and Rocky Boys/North Central Montana. Other rural water projects include Perkins County and Lewis and Clark.

Safety of Dams.—A total of \$95.2 million is requested for Reclamation's Safety of Dams program, which includes \$45.0 million directed to dam safety issues at Folsom Dam. Funding also includes \$29.3 million to initiate other safety correction activities and \$19.0 million for safety evaluations of existing dams. This includes \$1.9 million to oversee the Interior Department's Safety of Dams program.

A total of \$30.3 million is requested for Site Security to ensure the safety and security of the public, Reclamation's employees, and key facilities. This funding includes \$9.2 million for physical security upgrades at high risk critical assets and \$21.1 million to continue all aspects of Bureauwide security efforts including law enforcement, risk and threat analysis, personnel security, information security, security risk assessments and security-related studies, and guards and patrols.

Section 513 of the Consolidated Natural Resources Act of 2008 includes provisions for the treatment of Reclamation site security costs. Under these provisions, Reclamation will collect approximately \$20.0 million, as indexed for inflation, in security-related operation and maintenance costs that are reimbursable under Reclamation law. Approximately 60 percent of this amount is reimbursable through up-front revenues. Approximately 40 percent of this amount is appropriated and then reimbursed to projects through the normal operations and maintenance cost allocation process.

POLICY AND ADMINISTRATION

The \$61.2 million request in fiscal year 2011 funds the development, evaluation, and implementation of Reclamation-wide policy, rules, and regulations, including actions under the Government Performance and Results Act. These funds are also used for management and performance functions that are not chargeable to specific projects and required for ongoing Commissioner's activities.

CENTRAL VALLEY PROJECT RESTORATION FUND

The 2011 budget includes a request of \$49.9 million for the CVPRF. This budget request is offset by collections estimated at \$49.6 million from mitigation and restoration charges authorized by the Central Valley Project Improvement Act. The San Joaquin River Restoration Fund section below describes the impact that the San Joaquin River Restoration Settlement Act has on the CVPRF.

The 2011 program funds a variety of activities to restore fish and wildlife habitat and populations in the CVP service area of California, including: acquiring water for anadromous fish and other environmental purposes; providing for long-term water deliveries to wildlife refuges; continuing the anadromous fish restoration pro-

gram with the goal of doubling their natural production; monitoring the effectiveness of restoration actions; acquiring fee title or conservation easements to facilitate better management; restoring land to improve wildlife habitat, conserve water, and reduce drainage; and continuing funding for fish screens on diversions along the Sacramento River.

SAN JOAQUIN RIVER RESTORATION FUND

While there is a \$72.1 million request for discretionary appropriations in fiscal year 2011, receipts will be used, as authorized by the 2009 San Joaquin River Restoration Act, to implement terms of the settlement of the litigation. Funding in fiscal year 2011 will be used to continue planning, engineering, environmental compliance, fishery management, water operations, and public involvement activities.

CALIFORNIA BAY-DELTA RESTORATION FUND

The budget requests \$40.0 million for the California Bay-Delta Restoration Fund, pursuant to the CALFED Bay-Delta Authorization Act that was signed into law on October 25, 2004. The legislation provides a 6 year Federal authorization to implement the collaborative Bay-Delta program. Authorities authorized by the Water Supply, Reliability, and Environmental Act were extended until 2014, by the Energy and Water Development and Related Agencies Appropriations Act, 2010. A consortium of Federal and State agencies fund and participate in the Bay-Delta program, focusing on the health of the ecosystem and improving water management and supplies. In addition, Bay-Delta activities address the issues of water supply reliability, aging levees, and threatened water quality.

Funding for Bay-Delta is requested in the amount of \$40.0 million for the following program areas: \$5.0 million for water storage studies; \$3.5 million for the conveyance program; \$7.5 million for water use efficiency; \$8.5 million for the science program; \$5.0 million for water quality assurance investigations; \$8.5 million for ecosystem restoration projects; and \$2.0 million for Reclamation's oversight function to ensure program balance and integration.

FISCAL YEAR 2011 PLANNED ACTIVITIES

Reclamation's fiscal year 2011 priority goals are directly related to fulfilling contractual requests to deliver water and power. These include addressing a range of other water supply needs in the West, playing a significant role in restoring and protecting freshwater ecosystems consistent with applicable State and Federal law, and enhancing management of our water infrastructure while mitigating for any harmful environmental effects. Reclamation will deliver roughly 28 million acre-feet of water to meet contractual obligations while addressing other resource needs (for example, fish and wildlife habitat, environmental enhancement, recreation, and Native American trust responsibilities).

Reclamation will maintain dams and associated facilities in good condition to ensure the reliable delivery of water. Reclamation will maintain a forced outage average of 2.20 that is lower than the industry average for similar units to ensure reliable delivery of power. Reclamation has set a goal to prevent an additional 12,700 tons of salt from entering the water ways in fiscal year 2011. The actions Reclamation will take to accomplish this goal include selecting new salinity control projects through a competitive process.

Moreover, the fiscal year 2011 budget request demonstrates Reclamation's commitment to meeting the water and power needs of the West in a fiscally responsible manner. This budget continues Reclamation's emphasis on managing those valuable public resources. Reclamation is committed to working with its customers, States, tribes, and other stakeholders to find ways to balance and provide for the mix of water resource needs in 2011 and beyond.

CONCLUSION

Mr. Chairman, please allow me to express my sincere appreciation for the continued support that this subcommittee has provided Reclamation. This completes my statement. I would be happy to answer any questions that you may have at this time.

SENATOR DORGAN. Mr. Connor, thank you very much. We appreciate that.

Senator Harkin has asked for the privilege of asking a single question in order that he may chair a hearing at 10 o'clock, and

if there's no objection on the subcommittee, I would honor that request.

Senator Harkin.

CEDAR RAPIDS FLOODING

Senator HARKIN. Thank you very much, Mr. Chairman, and I appreciate the indulgence of the subcommittee.

I just have one question for Secretary Darcy. Cedar Rapids, the second largest city in Iowa, suffered a major flood, as you know, in 2008. It was broadcast all over the world. We saw houses floating down the river. It destroyed a great part of downtown Cedar Rapids. Over 5,000 homes were destroyed. The water was higher than even 1,000-year floods. It was the highest ever, ever on record. The Rock Island District is now working on the feasibility of doing a flood control project involved—improving Cedar Rapids' ability to withstand future floods.

Here's the problem, some parts of that project may meet the traditional requirements of the cost-benefit ratio. That would be improvements on the east side of the river that protects most of downtown and another part that protects some industries, Quaker Oats being the major one.

But it looks unlikely that the traditional cost-benefit analysis would be positive for the west side of the river. Well, on the west side of the river, we have over 4,000 homes of moderate- to low-income people. Many of them were damaged in the flood, and what happens—these are families of modest means. If the project moves on the west side of the river, you can then see that the west side may experience a worse flood in various scenarios because the east side would be protected.

I was pleased to see the December 3, 2009 proposed national objectives, principles, and standards for related resources draft. It looks at non-monetary fix, such as community impacts on groups such as those with lower incomes and the effects on the economy of the area.

So, I think it's extremely difficult to move forward with only protecting the higher income and the downtown areas, while increasing—actually increasing—the flood risk to those with lower incomes, modest incomes, on the other side of the river. The traditional national economic analysis just simply does not take these considerations into effect and also what it would mean economically for that side of the river, in terms of businesses and things like that, that simply wouldn't go there.

My question is—I just want to get your views on the need to move forward with a project that is crucial and whether or not it would be appropriate to consider these other concerns for a project like this.

Ms. DARCY. Your reference to the Principles and Guidelines being drafted is exactly what that's designed to do. Traditionally, we have only looked at national economic benefits when considering water resources projects. With the new Principles and Guidelines, we are looking at more than just the economic impact; we're looking at the environmental impact, the impact to the community as well as to other impacts, including social values. With the new

Principles and Guidelines, we'll get at exactly the concern that you have in your study.

Senator HARKIN. Thank you.

Senator DORGAN. Thank you, Senator Harkin.

For the information of members who weren't here when I began, I indicated that I have to leave at 10 o'clock. We have the FAA bill on the floor, and I also have to be at a Commerce Comcast-NBC merger hearing ever so briefly. So, Senator Tester will take the chair at 10 o'clock.

EFFECT OF PROPOSED BUDGET ON AUTHORIZED BUT UNFUNDED PROJECTS

Let me ask a couple of questions. Secretary Darcy, again, I understand your role, and that is to support this budget and not vary even one degree if you can avoid it, but it seems to me that we have \$67 billion of authorized unfunded Corps projects. Some of them will never be built, but we guess that somewhere around \$20–25 billion of those projects are going to be built. They are authorized, but at the current level of funding, it will take a long, long, long time to build and invest in that infrastructure. It just seems to me that a reduction of nearly one-half a billion dollars in fiscal year 2011 in investment in Corps water projects is not going to be able to do what we need to do to invest in these infrastructure projects. What is your judgment about that?

Ms. DARCY. Senator, we can always use more money, but we are going to make the best investments with the dollars that we have, not only for the infrastructure but for the entire Corps mission and the Corps program. We have a lot of challenges. We have many unmet needs. The infrastructure in this country, we all know, is aging. But within the dollars that we have proposed in this budget, I think that we are going to do the best we can with the high-performing projects that we are going to be able to afford to fund.

Senator DORGAN. Yes. I would guess the consensus of this subcommittee will be to re-prioritize the funding in the series of accounts in order to avoid a one-half-billion-dollar cut in water infrastructure funding. I just don't think that that's what we ought to be doing at this point.

Let me ask General Van Antwerp a question. You used one word that concerned me. You said, "I think we have the funding for this flood fight this spring." Did you mean to use "think"?

General VAN ANTWERP. We do have the resources. Let me clarify. We do have the resources right now for everything that we can predict that we're going to need to do.

Senator DORGAN. My colleagues will remember last year that the Red River flood fight went on for nearly a month. According to the National Weather Service, it appears there is nearly a 100 percent chance that we will see major flooding within the coming weeks, particularly in the Fargo-Moorhead area. So, they are also working on a flood control project and Secretary Darcy and I and others have talked about this. It's a very important issue for them because it is a recurring problem and puts a lot of population at risk and property and so on.

RURAL WATER PROJECTS

Let me ask, if I might, of the Bureau of Reclamation, how did you arrive at the funding decisions for rural water projects? Most of them seem funded at minimal levels, and the fact is at these levels, inflation is probably going to increase the project cost faster than the funding that we are investing in the project. So, can we get some notion of how you made these judgments about rural water?

Commissioner CONNOR. With respect to the rural water program, we have been able to increase the level of funding up to the \$62 million, which I think reflects a similar amount to that that was proposed in the 2010 budget. So, we are trying to keep a budget that makes some continued progress with respect to the two projects that have significant construction activity and are nearing completion. Those would be the Garrison project and Mni Wiconi. Within the available resources, given all the competing priorities, we're trying to present a budget that sustains activity in those other projects, keeps the administrative activity on the ground, and helps people continue to do their planning efforts and to do some level of maintenance on the project facilities that have been constructed since they're anywhere from 10 percent to 84 percent fully constructed.

So, I completely concede the point that at the funding level of \$62 million, several of those projects are going to fall behind from an inflation perspective versus what we are able to invest. But it's a level that has been brought up from prior budgets over the last 3 or 4 years. We were able to make significant inroads in some of the activity with respect to Recovery Act money, and we're trying to prioritize within the available resources in that account on a couple projects and keep the others going.

INFRASTRUCTURE REHABILITATION

Senator DORGAN. With respect to the Bureau, something Senator Bennett asked about or raised during his opening statement was that a recently passed lands bill, as Senator Bennett indicated, gave Reclamation the authority to address the rehabilitation of its aging infrastructure. Prior to this, it had been a non-Federal responsibility. But much of the infrastructure of the Bureau is well over one-half a century old, and some of it is in pretty poor condition, and yet no funding was provided in the budget.

And I guess the question I would ask is does this mean this will be and remain a low priority for the administration? And with the infrastructure over 50 years old, much of it over one-half a century old, the problem will increase rather than decrease; so has Reclamation developed contingency policies in the event of the failure of infrastructure?

Commissioner CONNOR. Infrastructure is a very high priority in our budget, and our budget starts with baseline numbers of what it takes to operate and maintain our projects. That's where building our budget starts, with those activities. That's an annual view of maintenance to keep projects in operating condition. We do have a significant issue with respect to major rehabilitation, and the tool provided in the omnibus public lands bill was a very valuable tool.

Previously, there was just no opportunity for our stakeholders to make that investment beyond a 1-year period. Now we have a tool that, if resources are provided, they can enter into a repayment contract not to exceed 50 years.

So, that's part of what we need to be doing. We don't have any money request in the budget. You're correct. But we're still evaluating the needs in that situation. We invested \$10 million of Recovery Act money to assess the condition of our major canals. We're doing 95 stretches of canals that we anticipate we will have reports on through the end of this calendar year that will identify the need of where we think we need to make investments. We are talking with some stakeholders about their major rehabilitation needs, such as in Idaho, and initiating discussions on what a repayment contract would look like so that we can put that tool to work, should there be resources.

And, finally, if we can do this without a major increase in our appropriations for this activity, one of the keys is to have the loan guarantee program that was authorized in the 2006 Rural Water Project Act. In trying to implement that loan guarantee program, we came across several issues that need to be evaluated, and that's going to be on our agenda this year, to go back to the Office of Management and Budget and have that dialogue on that loan guarantee program.

Senator DORGAN. Secretary Darcy, do we have the full commitment of the Corps of Engineers to work with the Red River Valley in Minnesota and North Dakota and the interests as they move forward, not only to fight that flood this year again, as they've done so many years, but also as they work locally to make judgments about the comprehensive flood control project that is necessary to protect the largest population center on the Red River Valley? Is the Corps prepared to work fully with State and local interests with respect to the Federal interest on these projects?

Ms. DARCY. Yes, Senator, we are.

Senator DORGAN. And anxious to do that?

Ms. DARCY. Can't wait.

Senator DORGAN. Happy to do that? It's going to be very important. I mean, we've got people living on an edge here that has been very troubling for them and now facing a very significant, major flood threat once again. So, I appreciate that.

Let me make one comment, and that is that, you know, 50 years ago, half a century ago or more, in this country we built new things. We did a lot of projects, a lot of new projects. We built an interstate highway system that connected the entire country. We couldn't do that now in a million years. You couldn't propose spending that kind of money to connect America with an interstate highway system, but the fact is, if we don't get serious about the infrastructure, yes, roads, bridges, water projects, you name it, we won't be the kind of country we used to be in the minds of people from around the world who came to see what America built. You know, we won't be making anything, and we won't be building anything. We've already gone way down the road in not making anything.

But this budget is very important. This subcommittee is a very important decisionmaker about what our country is going to be in terms of the infrastructure we build for the future. These are big

investments that create significant assets for decades to come. So, I want you all to work very hard inside the administration next year to bring better budgets if you can, because we're going to have to make significant judgments and changes in this budget. I just think it substantially and dramatically underfunds our water programs.

As I indicated, we will have 7-minute rounds. I exceeded mine by a minute or so, but let me call on Senator Bennett.

Senator BENNETT. Thank you very much, Mr. Chairman, and thank you for your statement. I agree with you absolutely that this subcommittee is going to have to exercise its authority to try to correct some of the problems we have in this budget.

QUAGGA MUSSEL R&D PROGRAM

Senator Voinovich focused on the carp and the difficulties that would create in the Great Lakes. People in Utah are very concerned about Quagga mussels and the impact that they will have as an invasive species in Lake Powell and other places. And in fiscal 2010, we provided funding to the Bureau of Reclamation to establish the Quagga mussel R&D program, and I'd like to know what the status of that is.

Ms. CASTLE. Yes, Senator, the Quagga mussel program—the science and technology and research and development on both looking at materials that will resist the attachment of Quagga mussels and also looking at ways to kill them selectively without killing other life in the water—that is ongoing in Reclamation's Technical Services Center. The budget for science and technology this year, proposed for 2011 for the Bureau of Reclamation, is about \$6 million. Of that, approximately \$2 million—and Commissioner Connor and Mr. Wolf can be more specific—is for that Quagga mussel research.

Senator BENNETT. Thank you. I appreciate that specificity and simply want to reaffirm the importance of following through on that.

CENTRAL UTAH PROJECT COMPLETION ACT

You made reference, Secretary Castle, to CUPCA, the Central Utah Project Completion Act, and the budget is up \$1 million compared to fiscal 2010. Obviously, you will insist that this is the right number, but can we probe that just a little and see what the total funding capability for CUPCA in fiscal 2011 and why you think that's adequate?

Ms. CASTLE. Senator, we were actually delighted to have an increase in the CUPCA budget for 2011 given the austerity of the overall budget. CUPCA also benefited, as you know, and you were responsible for significant Recovery Act funding. It's my understanding that CUPCA normally has about three project contracts going at a time. We now have nine as a result of the Recovery Act additional boost. So, that money has really allowed us, together with the 2010 and 2011 budgets, to move forward much more expeditiously than we had anticipated with CUPCA, and we are fulfilling the capability of the Central Utah Conservancy District.

2011 DROUGHT OUTLOOK

Senator BENNETT. Very good. Let's talk about drought. What is the drought outlook for the West in 2011? You've budgeted \$380,000 for drought assistance, and that means you must be looking at a pretty wet year. Give me your background and your attitude with respect to that.

Ms. CASTLE. Well, I'll take a crack at it, Senator, and then turn to Commissioner Connor. The drought outlook varies every year. We're used to seeing very significant droughts in the Southwest. This year, it looks like we're going to have significant drought in the Northwest, in the Columbia River system, in the Upper Colorado Basin. And we're focused on that in looking at our water management operations and trying to plan for the best use of the available water. Fortunately, many of our reservoirs have been able to refill over the past year, so we're going into this, in these drought locations, in better shape than might have been the case.

The drought assistance money that the Bureau of Reclamation has had has not been huge amounts over its history. We have authority for drought assistance. That authority expires at the end of 2010 fiscal year. We do have \$380,000 in the budget for the contingency that we are able to spend that money for drought assistance. We're able to use it for temporary structures and for the construction of wells to assist in drought relief. And that's something that we may want to work with the subcommittee on to look again at the authorization for drought assistance and determine whether those particular authorizations make sense in light of current conditions.

LAKE POWELL

Senator BENNETT. You say the reservoirs are refilling, and that is true in the Central Utah Project. Do you have any sense of where Lake Powell is going to be at the end of this year? Back up, but how much or is that just a—

Ms. CASTLE. Yes—

Senator BENNETT. Yes, I realize, but you've probably done some studies as to where you think Lake Powell is going to be.

Ms. CASTLE. The most recent figures that I've seen indicate that stream flows and precipitation, snow pack in the Upper Colorado, the source of fill for Lake Powell, is about at 68 percent. So, it's been coming down and down and down. It started the water year out very well, but things have not progressed the same way. So, Lake Powell may not get any fuller than it was—last year it was about 60 percent at its peak of capacity. But let me defer to Commissioner Connor, who may have more specifics on that.

Senator BENNETT. Yes.

COLORADO RIVER BASIN

Commissioner CONNOR. Just a couple additional thoughts. I think Lake Powell currently is a little over 60 percent of capacity. The real issue is the Colorado River Basin—and all the figures that Secretary Castle quoted are the ones we're working with. As a result, Lake Powell will probably release the minimum 8.23 million

acre-feet this year to satisfy the Colorado River Compact obligations.

Lake Mead is only at 44 percent capacity, and that's the real concern at this point in time in the Colorado River Basin. Fortunately, it was at 42 percent just a couple months ago. So, the moisture in southern California and that area has helped us save water, and that has improved the situation. And the coordinated operations agreement that the seven basin States put in place a couple years ago has helped us have an objective set of criteria to manage those two reservoirs so that everybody understands the rules and is dealing with them. But if we don't turn around and have a good precipitation year—we're in a 10-year drought cycle in the Colorado River basin—we're looking at the possibility, within a couple years, of having to declare a shortage in the Lower Colorado River basin. So, things are touch and go with respect to that system.

Senator BENNETT. Thank you very much.

Thank you, Mr. Chairman.

Senator TESTER [presiding]. Senator Landrieu.

Senator LANDRIEU. Thank you, Mr. Chairman. Moving from Utah to Louisiana is about as different as you can get on this subcommittee, and it shows how difficult and challenging our work is, and your work, to accommodate the extraordinary needs of the Nation with very limited resources. The Senator was just questioning you about the lack of water, and I'm going to question you about the fact that we have so much of it we don't quite know what to do with it. And if we could keep it in our rivers instead of out of neighborhoods and cities where homes fill up to the roof with water, we would be in better shape, and that's what my line of questioning is.

LOUISIANA COASTAL RESTORATION

I want to begin on a positive note, though, by thanking this team and particularly the President for, in all of the budget, designating only two new starts and one of those being the coastal restoration efforts in Louisiana, which we have put extraordinary and mighty and, I think, good work into getting the Nation's attention about the great need. And I want to say that we're grateful for the \$10 million that is in this bill to begin turning dirt, at least the Federal Government begin really turning dirt, on Louisiana coastal projects, which protect not just south Louisiana and parts of Mississippi and actually benefit some parts of Texas, but actually benefit the entire Nation as we are the largest drainage basin in the Nation, the fifth or sixth largest delta in the entire world. We have the largest land loss anywhere in the lower 48. And it's quite an urgent matter.

But my question is this: We have \$10 million for new construction. That is going to be applied to 18 projects, currently approved and pending authorizations, General or the Secretary, the total of which is \$2 billion in authorization. So, I just did a little rough math, assuming these projects will take anywhere from now to 7 years. We need \$300 million a year just to finish these 18 projects, which are the first piece of the Louisiana coastal restoration effort. And you've given us \$10 million. We're grateful, but how are we going to get where we need to go?

Ms. DARCY. Senator, as you say, this is a start. The needs in coastal Louisiana have been identified by not only the Congress but on the ground down there. We've got ongoing studies also in the budget this year. We are funding six additional studies—the six studies for the LCA program.

Senator LANDRIEU. I appreciate that. I don't want to interrupt. I appreciate that, but the point is this—that we've actually been studying this, the Federal Government has been studying this now for more than 20 years, and this is the first \$10 million that's been directed in a budget for construction, of studies associated with coastal security and restoration. We don't really need more studies. What we actually need are more hard dollars to construct what we already know we should be doing. So, I just want to leave you, you know, with that challenge.

I will second, ask for some comments from you, Madam Secretary, about the White House Working Group on Coastal Louisiana, which I know you were a part of, and this was part of the outcome of this work. How—I'm encouraged by the first step; I'm encouraged by the report that was released. How do you think—and I'd like, General, you to comment as well—how can we accelerate our work based on this new working group, and what does the Corps—how does the Corps either its changing role or a different role based on what this report has already indicated? And maybe, General, I'll ask you, and then come back to you, Madam Secretary.

General VAN ANTWERP. Thank you, Senator. First of all, I think what it really is, is a signal for partnership and collaboration and really working with local authorities to get all of the input that we need so we get the preferred solution, the best solution, and the one that has the best benefit-cost ratio. I think it is definitely a move in the right direction.

Senator LANDRIEU. Did you all talk about accelerating the time for planning, construction, and implementation?

General VAN ANTWERP. We have had a lot of discussion about cutting the amount of time in the planning process. The other issue that we've been discussing is the external reviews, in that how can we make sure we get those done so that we get the best and the brightest working with us, but not to extend the time that it takes to get this done, to actually cut it down. We're really looking at saving time to get to the end state, to get to construction, as you've mentioned.

Senator LANDRIEU. Well, I would just mention to my colleagues, this is really an unprecedented effort that's going on between the Corps and many of the environmental groups, the marine industry, the fisheries industry, the agriculture industry, the oil and gas industry, the State of Louisiana, and it really is an exciting project, but we're going to continue to need to accelerate the work and find additional resources.

LEVEE CERTIFICATION

Going up to the top of my State, to Louisiana and actually up to the Mississippi, there is great concern—you've heard it mentioned again, and I guess maybe, Secretary, this would be for you—about the recertification of the levees. Now, these levees—this levee

system was built in large measure after the great flood of 1927, and that was generations ago. We didn't even have GPS and the technology we have today to give accurate elevation accounts. Now we're—the Corps of Engineers is traveling up and down these levee systems through all of our States, coming up with accurate data, but it's causing a recertification of these levees, Madam Secretary. My question is; is there any money in this budget to help even one community with increased insurance costs or increased cost-share?

Ms. DARCY. Senator, the money included in this budget is not for certification for those levees. As you know, the local sponsor is responsible for the operation, maintenance, and the certification of those levees. We're finding across the country that they are challenged mostly because of the time constraints in getting a levee either certified or repaired, and then when the FEMA flood insurance requirements will kick in.

Senator LANDRIEU. Well, I'm going to ask the Corps to submit to this subcommittee an estimate of the total amount of money that is going to be needed to accommodate these new certifications. I think this subcommittee is going to be shocked when the numbers come in, about what our communities are going to have to either step up or pay in money that they don't have or pay in additional insurance premiums to get flood insurance coverage, and for Ouachita, for Rapides Parish in my State. But it's all the way up the Mississippi River and perhaps in some of the other river systems as well, so.

I have several other questions, but my time is out. I'll submit the rest for, you know, written response, and just to invite any of you that want to travel to the Netherlands, we're taking a third trip. This subcommittee has been gracious about supporting these efforts over time, and we've found some extraordinary peer opportunities in the Netherlands about water management, living with water safely, which is something I think our country needs to learn how to do a little bit better. Thank you.

Senator TESTER. Thank you, Senator Landrieu. And it does affect other drainages. I will defer till the end.

Senator Cochran.

EXPEDITING PROJECTS FOR JOB CREATION

Senator COCHRAN. Mr. Chairman, Madam Secretary.

Secretary Darcy, we appreciate very much your efforts to work with the elected officials in our State of Mississippi to identify and try to help move forward water projects, reclamation projects, and protection of gulf coast areas that are threatened. And our Governor is hard at work trying to identify some of the things that can be done in cooperation between the State and its responsibilities and Federal Government agencies.

The reason this has taken on a new urgency is that just this morning, we received word that unemployment in the State of Mississippi has reached 12 percent. That was not expected, but it—the news comes as a warning that we need to get busy and figure out ways to deal more effectively with unemployment problems and look to Government agencies who can contribute with accelerating projects that were already approved, already been funded, but where work and actual job-creating activity is not moving as fast

as it could be. So, I'm hopeful that we can work with you and General Van Antwerp and others in the Federal agencies and the Corps of Engineers to try to identify some of these opportunities.

One permitting project that can be expedited, I'm told, that has already be funded is the port at Gulfport, where work can be done to help modernize and recover from some of the damages that were sustained during Hurricane Katrina. We've had serious damages done there that need attention, and we can start work very quickly. There's a Mississippi coastal improvement plan which is also finished. It's my understanding that the Corps is looking at ways to improve and expand port capacity in the Gulf of Mexico. We have a Panama Canal expansion that's under way.

So, things are coming together now and providing opportunities for us to really do some things that will help economically both State and national interests.

So, I'm wondering—and I don't know which witness wants to take this question, but what is the time line now for implementation of the Mississippi Coastal Improvement Plan? We provided \$439 million for barrier island restoration work, and we wonder when the work is actually going to begin.

Ms. DARCY. Senator, I believe the work on that particular program which was authorized in an appropriations bill and included funding of \$439 million, I believe that some of that work has begun. In addition to that, we have submitted to the Congress the Chief's report for additional ecosystem restoration for the barrier islands and others along the coast of Mississippi. It was the first Chief's report that we actually submitted to the Congress earlier this year, and I think that included 12 additional projects on the coast, including the barrier island restoration.

Senator COCHRAN. General Van Antwerp, do you have information you can provide us?

General VAN ANTWERP. I think that information covers it, but your other question about getting the permits required—we're committed to getting the permits as quickly as we can in some of the areas like the Gulfport Harbor expansion. We are probably going to need an EIS there because of its large amount of fill and other things. Generally, an EIS takes 18 to 24 months. We're looking at all of those aspects to try and expedite the permit process.

Senator COCHRAN. Well, our Governor, Haley Barbour, is working very hard in his capacity as Governor of the State of Mississippi to help contribute to expediting these projects. And so, what I'm hopeful is that if you run into any delays that can be dealt with either by legislation or by accelerating appropriations directed toward some of these projects, you will please let us know. I'd like for you to look at the budget request you've submitted and find some areas where we can provide funding that will help achieve these goals of better and higher levels of protection and job-creating activities where the projects have been approved, Congress has approved them, directed that they be done, funding has been appropriated, but nothing is happening. So, we hope we can change that and we will have your cooperation in doing it.

Ms. DARCY. Yes, Senator. I had the opportunity to tour the coast of Mississippi with the Governor several months ago, and he was adamant about not only expediting permits but, I think, to quote

the Governor, about the expansion of Gulfport Harbor, he was "as serious as a heart attack" about that project. So, we're well aware of it.

Senator COCHRAN. Well, with the Panama Canal expansion, the opening of the new parts of that, we're going to see a lot more traffic coming into the Gulf of Mexico, bigger ships. We're going to have to accommodate those ships at gulf coast ports. And the port at Gulfport is ideally suited geographically. The public supports the expansion. You're not going to have people out there lying down in front of the workers when they start to work. People are going to be cheering and applauding because they know it's a good idea economically, and in terms of environmental concerns, it has already been cleared. Thank you for whatever you can do to help expedite that.

Thanks, Mr. Chairman.

Senator TESTER. Thank you, Senator Cochran.

Senator Johnson.

BUDGET POLICY OF THE BUREAU OF RECLAMATION

Senator JOHNSON. I want to thank the panel for appearing before this hearing. It is nice to see you again, Commissioner Connor. And I hope that you are enjoying sitting on your side of the desk after all the years you've spent in the U.S. Senate. I also want to commend the Bureau on using the Recovery Act funds to speed up the completion of key projects on water systems in the Great Plains and South Dakota.

Commissioner Connor, it is my understanding that the Bureau's first priority in funding rural water projects is a required O&M component, and then for construction, the priority is on projects nearest to completion and projects serving Indian tribes. That stated policy doesn't seem to align with the actual budget. I'm profoundly disappointed, in fact angry, at the Bureau's budget for South Dakota projects in particular.

What the Bureau proposed was a budget that did not fund drinking water projects with a tribal component, such as Mni Wiconi, at their full capability, and then provided what appears to be a fig leaf of money for projects without a tribal component, such as Lewis & Clark. Can you explain to me what appears to be an absolute disconnect between the Bureau's budget policy and the actual funding requests?

Commissioner CONNOR. Senator Johnson, there is some consistency with the priorities, given the fact that Garrison and Mni Wiconi did receive the most resources in the budget request, based on both their tribal components and where they are in the construction phase, being two of our most advanced projects.

With respect to the other projects, we are within the resources we have, once again, which do not reflect capability, as you noted. We are trying to maintain some activity on those projects to allow there to continue to be planning activity and for there to continue to be some level of maintenance of the facilities that have been constructed. We did, as threshold matter, take into account O&M as the priority. So, we have \$15 million of the \$62 million that's been identified in the budget is for O&M. I think it amounts to \$5 million for Garrison and \$10 million Mni Wiconi. And those are, quite

frankly, eating up an increasing part of the overall budget that we can make available within the resources we have right now.

So, I think the answer to your question is we are trying to allocate those resources on a proportionate basis, based on those priorities, those are the overall amounts that we have. I certainly understand it doesn't keep up with the construction schedules that could be attended to if there were available resources, and we're trying to do our best to keep the projects in some level of activity as we move forward.

Senator JOHNSON. I would remind you that the State and local share has been completely exhausted, and all that's left is the Federal share.

I know that the State of California has required quite a bit of your time and energy over the past several months. Speaking for members of the Great Plains region, I'd like to extend an invitation to you to travel to South Dakota to see for yourself the progress being made in completing these important rural water projects serving hundreds of thousands in South Dakota.

NORTHERN PLAINS FLOODING

General Van Antwerp, the Northern Plains region are under the threat of significant overland and river flooding this spring as a combination of very wet snow pack and saturated grounds from a rainy, wet fall. Can you please describe in detail what actions the Corps of Engineers are taking now to prepare for a possible severe flooding?

General VAN ANTWERP. Thank you, Senator. We're taking a lot of action right now. To outline a few of the things—first of all, we've gotten with NOAA and we have the projections, as best as they can determine right now, and that gives us the early warning. We know that there is going to be significant flooding. We've started with our community involvement. It's actually been going on for quite some time, with the State and Federal agencies. We've looked at the request for advance measures and have received a lot of those where we've looked at our inventories of things such as sand bags for example, and things that would be part of those advance measures. We have the resources we feel necessary to fight these floods. We actually have people out on the levees today with the local folks.

One of the other things we do is we lower the water levels at our reservoirs. We're doing that right now in anticipation so that we can be as ready as we can. We had a meeting yesterday with all of our Commanders associated with this and our security chiefs that have to do with the flood fighting just to make sure those personnel resources can be made available and are available when this happens.

We also have another event pending in the Pennsylvania area, in which our Pittsburgh District handles. We're going to be all across the country, maybe as early as this weekend.

Senator JOHNSON. Thank you, Mr. Chairman.

Senator TESTER. Senator Bond.

Senator BOND. Thank you very much, Mr. Chairman, Senator Bennett, for holding the meeting, my apologies for arriving late. Senator Murray and I have the responsibility to try to straighten

out HUD with Secretary Donovan. She is questioning him at length and will be here, and I'm going back. Anybody wants to go take a few shots in the interim, please do so.

But, Lieutenant General Van Antwerp and Madam Assistant Secretary thank you very much for your testimony.

Jo-Ellen, we welcome you back to the Senate. I hope I won't get you in trouble with the administration to say that we all were glad to have a long-time friend from the legislative side on the other side of this debate. So, I hope it doesn't mess you up.

But as you all know well, there's one issue that's near and dear to the hearts of several of us. Senator Dorgan and I are both very interested in the regulation of the Missouri River. Now that Senator Dorgan and I have full lakes and a full navigation season, our work is complete, so we both are able to retire from the Senate in 2011. I know how much you will miss us both and all our helpful counsel, but with us gone now the entire burden lies on you, don't blow it.

We finally got the lakes and the rivers full, and it's up to you to keep it going.

INLAND WATERWAY MANAGEMENT

But on waterways in general, we have some very difficult economic times, and we're all looking for stimulus. There's a lot of money being spent. I hope that you two are being strong advocates within the administration for budget priorities. And there are budget priorities that are very important.

We have immense capacity on our rivers for shipping. It's efficient. It takes far less energy, releases far less pollution, and it's a big answer to long-term congestion problems. This is a win-win opportunity. We have projects in the backlog that are shovel-ready, and I hope you're looking at these and fighting for them. They need to be—they need to be included in the budget and the plans. A big priority for a lot of us in the Midwest is modernizing the Social Security-age locks on the Mississippi River. If you are for increased trade, commercial growth, and job creation, all of which we desperately need right now, you cannot get there without supporting the basic transportation and infrastructure, like the much-needed new locks and dams on the Mississippi.

As we look 50 years into the future, we have to ask ourselves a fundamental question: Should we continue to be stuck with a system that was designed in a transportation straightjacket for 1950 rather than 2050? It was designed when we still had paddle wheel boats, and we are strangled. I've visited those locks. I've seen the double locking they have to go through. And we know that if one of those locks—they don't just leak right now; sheets of water come down when the water is low. If one of those locks on the lower Mississippi—one of the lower ones goes out our trade is going to be crippled.

You remember what happened—well, those of us in agriculture territory know what happened when Hurricane Katrina blocked the mouth of the Mississippi River. I mean, it was a—it was a huge shock to the entire economy of rural Midwest. That's where I live. That's where my people live. And I was very troubled and disappointed that while funds for river modernization are authorized,

there's no money for those projects in the budget. The oversight is disappointing since the locks are our Nation's most important inland waterways and the projects are ready to go. I'm stumped by the budget oversight. Since the President has been on his—you may remember he was a lead partner with me in authorizing the project, and the future is now in his hands. Get the word to the Budget Office.

I see this as a most promising opportunity to get something big and important underway. It is good for jobs. It is good for reducing energy dependence, and it is the best thing we can do in transportation right away for lessening pollution. This project would involve 48 million man-hours, creating much needed jobs. And our friends in labor, throughout the Midwest, are crying for this job stimulus, which is good for the economy, good for the environment. It will put—it will help people in the Heartland grow, mine, manufacture things, and be more competitive.

Additionally, river modernization has broad ecosystem restoration components, and while that doesn't create as many jobs as we would see on the commercial side, it would help broaden the support for pressing forward with a meaningful project with bipartisan support. And, as I said, the President when he was in the Senate was a vigorous supporter of this, and we need OMB to get the job.

Now, I guess I'm going to be sending a letter to the administration, but, General, let me ask you, are you working on these opportunities? Are you looking for similar opportunities where the Corps can work with stakeholders, work on American job creation, and work to get the necessary financing behind the projects that I think anybody who has paid any attention to it knows we badly need? What's happening? Where are you going? When are we going to see some budget recommendations?

General VAN ANTWERP. Thank you, Senator. There are a lot of questions in there. I'll try and give it my best shot. I was——

Senator BOND. How are we going to get—we need money in the budget.

General VAN ANTWERP. Right.

Senator BOND. That's the question.

General VAN ANTWERP. That's the bottom line.

Senator BOND. What are you doing to get it there?

General VAN ANTWERP. I guess the first thing is to really know what we have and what condition they're in, and we do know that now.

Senator BOND. Yes.

General VAN ANTWERP. So, we can prioritize those things. You know we had some lock chamber problems this year, and what we don't want is unscheduled outages because that's what backs up the industry. We do know what we have, and we've taken these dollars in this budget and, as best we can, prioritized for those that are most crucial, have the largest impact, and have the most—I guess the most opportunity for failure. So, that's how we've budgeted right now.

Senator BOND. But you know there—the needs are far greater than the dollars in the budget.

General VAN ANTWERP. The needs are far greater than the dollars we have——

Senator BOND. Far greater.

General VAN ANTWERP [continuing]. To put against them. Yes.

Senator BOND. What can you do to help get the dollars there?

General VAN ANTWERP. Well, I think that the first step really is what we've done, and that is to let the need be known with the priorities, so that we know that with whatever dollars we have, we're able to do the best we can. We have some American Recovery and Reinvestment Act dollars in the O&M account, about \$2 billion in the civil works arena. That helped a lot, but the backlog is great. The American Society of Civil Engineers says the infrastructure backlog in the country is \$2.2 trillion. That is what we're up against, and we have a part of that, as you said. It's Social Security age. I like the way you stated that. That's the age of our lock system.

Senator BOND. Unfortunately, when we talk about Social Security age, I'm at the age where "don't ask, don't tell" refers to the year I was born in so, I know something. The locks are older than I am which should be shocking.

Mr. Chairman, I am going to—I'm going to have to go back to the hearing, but I know that Senator Murray obviously has quite a few things she'd like to ask. But I'll leave you with good wishes and the profound hope that we can work together and make sure we get the money in the budget for what is a tremendous opportunity that we're missing now.

Senator TESTER. Thank you, Senator Bond. And tell Senator Murray that, when she gets here, we'll be open for business, but tell her to move quickly.

Senator BOND. I'll do that.

Senator TESTER. Thank you.

LEVEE CERTIFICATION

This is a question for Secretary Darcy and General Van Antwerp, and it deals with a singular town, but by Senator Landrieu's questions, it's more broad-spread than that, and I think you know that.

Right now, the city of Great Falls is having—Great Falls, Montana, is having a serious problem getting their levees certified for inclusion on the FEMA flood maps. Last July, FEMA let Great Falls know that their levees would need to be certified. When Great Falls went to the Army Corps for help, it turns out that those policies changed the January before to say that no Federal funds could be used on levee certification unless it was in an active Army Corps area project. That left not only Great Falls but a lot of folks scrambling to find out how they could come up with an engineering firm that was qualified to do the work and, second and even more challenging, a way to pay for it. Because all the communities in Montana are rural, you do not have the population to be able to spread out those costs.

I was just wondering why that change was made, why the Army Corps made the change to not do any more certification, and what are they doing to help small communities with levee certification.

Ms. DARCY. Senator, the decision was made to change the policy because of resource limitations to certify the levees. We, at the moment, are trying to work with the locals in order to provide some

sort of way to help them with their inspections, but at this time, we don't have a budgeted resource for that service.

Senator TESTER. Okay. So, ultimately—I mean, Senator Landrieu asked a question of how much it was going to cost. We've heard anywhere from, well, around \$30,000 a mile. The folks in Great Falls that I talked to said it was going to be more than that. How are we going to solve this problem? Because the fact is, if we don't get the levee certified, if they don't have the means to do it, and the flood insurance goes up, houses don't get sold—it further depresses an already depressed economy. How are we going to fix it?

Ms. DARCY. Senator, I think one of the things we can look at doing is working with FEMA. I think one of the challenges that many of the local sponsors are finding is one of time, that there's a 2-year window here in order to get your levee certified before the increased flood insurance rates would kick in, and in many instances, it may just be a matter of time in order to get the resources and get the levee in shape to get certified.

I think if we can work with FEMA in order to look at some kind of—I'm not sure what the end result would be, but I think we need to look at that because there are lots of people, not only in Montana, but around the country who are faced with the same challenge. And it's not that they were bad actors; it's just there's not the time nor the resources to do whatever is needed to bring the levee up to certification.

But your point about is there a firm in their geographic area or nearby who has the capability and——

Senator TESTER. Right.

Ms. DARCY [continuing]. And the wherewithal to provide that certification.

Senator TESTER. And it's not only time; it's liability, too, because during that 2-year period, the liability shifts to local cities, towns, counties. Is there anything that can be done about that?

Ms. DARCY. That, again—I think we have to address it. I can't tell you right now what that would be.

Senator TESTER. Okay.

General VAN ANTWERP. Senator, if I might add, one thing we're doing right now is we're trying to get the databases for inspections that have been done so that it can cut down on the cost of certification. There are a lot of A-E firms out there that will do the certification today, but, as you suggested, it's the cost. And it can range from between \$150,000 to \$1 million depending on——

Senator TESTER. How big the levee is?

General VAN ANTWERP [continuing]. The levee.

Senator TESTER. Yes and the other issue is bonding, because of the liability issue.

General VAN ANTWERP. Right, your liability associated with that.

Senator TESTER. Yes. Along those lines, you are performing—the Army Corps is performing some work on those levees. Is it your opinion that work will be able to be used in the recertification project to help drive costs down, even if the recertification is done by a private engineering firm?

General VAN ANTWERP. We basically have four types of levees. We have levees that are Corps-built, Fed-built, and Fed-operated O&M.

Senator TESTER. Yes.

General VAN ANTWERP. Then we have the Fed-built, but locally maintained.

Senator TESTER. Right.

General VAN ANTWERP. And then we have some that are in a category that we flood-fight, and then we have the others. And the others are about 100,000 miles worth.

Senator TESTER. That's fine.

General VAN ANTWERP. So—

Senator TESTER. The question is, is where you are already doing certification work, is it possible to use that certification work to help keep costs down by a private firm that's doing certification work? And—

General VAN ANTWERP. We're working—

Senator TESTER [continuing]. Is that being done now, because there's a lot of work that has to be done.

General VAN ANTWERP. Where we're doing certification work right now is in the area where it's Fed-owned and Fed-maintained, and so that's the limit of what our resources allows us to do. So, that other area, other than giving them all the data we have for those other types of levees, that's been our contribution to try and help them cut costs.

Senator TESTER. Okay. And just to confirm, I heard you, Secretary Darcy, say that you were going to—because this is my next question. I think you may have already answered it. That the Army Corps was going to work with FEMA to help with local communities with the flood issue. Because it's—I mean, we've got them across the board. I mean, town that have—Malta, Glasgow, Chinook, Saco. I mean, some of these are really small towns. There has to be a solution for this; otherwise, we're in big trouble.

Ms. DARCY. I think that we will need to work with FEMA in order to help to address that concern because, as you noticed and as you have stated, it's nationwide.

Senator TESTER. Okay. Thank you. I'm going to kick it over to Senator Murray, and then I've got some questions for the Corps after Senator Bennett gets done.

Senator BENNETT. I'm waiting to hear what Senator Murray has to say following on Senator Bond. So—

Senator MURRAY. I will just send him back to Transportation, so.

Well, thank you very much, Mr. Chairman. I really appreciate your having this hearing. I know the Corps is facing some tough budget times ahead, and I appreciate the work all of you do out on the ground.

HOWARD HANSON DAM

General, I wanted to talk to you because, as you know, Howard Hanson Dam in my home State of Washington, has a significant seepage problem that is putting all of our downstream communities at serious risk of very, very dangerous flooding, and I really want to thank you and Assistant Secretary Darcy for coming out, visiting the dam and seeing first-hand how important this is to all the people in the Green River Valley below it. And I see that General Grisoli and General McMahon are in the audience as well. They came and talked with all of us last week. I know they are up to

date on this. And I appreciate the tremendous amount of work on this.

I know that the Corps is currently working on a study now to determine what needs to be done at Howard Hanson Dam, and as you know, this study needs to be completed by a certain point, by June of this year, in order to be considered for the fiscal year 2012 construction funding. I sent a letter to you all back in February urging you to move quickly on the study so that we will know what we need to do to protect our Green River Valley communities, and I can't stress enough how important it is that the Corps get that done.

So, my question to you this morning, General, is what assurances can you give me that this study will in fact be ready by June of this year?

General VAN ANTWERP. Thank you, Senator, for the question. I'm getting the latest and greatest information right now.

Senator MURRAY. I can see that.

General VAN ANTWERP. The study will be at the point that we will have alternatives identified so that we can begin the process of the design.

Senator MURRAY. By June of this year?

General VAN ANTWERP. Yes, ma'am.

Senator MURRAY. Okay. I really appreciate that. And, Secretary Darcy, thank you so much for your work and working with us a lot on the advance measures for Howard Hanson and, again, for coming out. I want to continue working with you to find ways, as we move forward on this, to make sure everybody is as safe as possible.

COLUMBIA RIVER

But I do want to ask you this morning about another critical issue to my State. I worked very hard and was able to include \$26.6 million in the Recovery Act for the Army Corps to complete the Columbia River Channel Deepening Project in Washington State. It was a big victory for the region. That deeper channel is so important to us to accommodate larger ships, to help the economy in the region, and to support 40,000 jobs that depend on that maritime commerce. That project, right now, creating jobs is people at work. I was there a few weeks ago. It is really laying the foundation for long-term economic growth, and that's why I thought it was such an important use of recovery funding.

But I am concerned still that all of that work that we've done and all the time we put into that will be for nothing if the Columbia River jetties fall into disrepair. Those jetties are so important to our shipping industry. That supports billions of dollars in economic activity throughout the region. Those jetties actually protect the mouth of the Columbia River from all the ocean waves as well as a lot of beach sand that clogs that shipping channel. And their continued effectiveness is absolutely essential to this region and to our economic health.

So, I was really happy that the Corps did put forward a plan to bolster those jetties, and I'm committed to working with you to make sure that you have the resources you need to get that done.

But my question this morning is, directly to you, will you continue to work with me and our local communities to make sure that we move forward in a timely fashion on those critical jetties' repair?

Ms. DARCY. Yes, we will, Senator.

Senator MURRAY. And you'll continue to prioritize that issue, plan budgets to make sure we have the necessary funds for it as well?

ODESSA SUBAREA SPECIAL STUDY

Ms. DARCY. We will strongly consider it always.

Senator MURRAY. Okay. Thank you very much. I appreciate it.

And, finally, Commissioner Connor, while you're here, I wanted to ask you—I'm really disappointed that the President's budget doesn't include funding for our Odessa Subarea Special Study. You know the Columbia Basin Project is a critical tool for our farmers in my home State of Washington and neighboring States. It secures a reliable surface water supply for the producers. That's very important to making sure that the continuation of agriculture in central Washington and to protect our ground water supply as well. Can you tell me this morning how the Bureau is progressing with the funding Congress has provided? And are you still on track for completion in 2011?

Commissioner CONNOR. At this point in time, we are making good use of the resources that Congress has provided and that you specifically were able to get for us with respect to the study activity. So, we are on track right now with the environmental impact study to get a draft out this spring 2011. Hopefully, we will not have a whole range of issues, and the game plan is then to be able to finalize that document in the spring of 2011. So, we still are on track at this point in time with the funding provided by this subcommittee, plus the State funding. I think we've got enough. We will keep your office posted if we think we're going to run short of funds.

Senator MURRAY. Okay. Please stay in very close touch with us. This is very important for that region of our State—actually, for our entire economic region there. So, I appreciate it very much, and we want to continue to work with you on that.

Commissioner CONNOR. Absolutely.

Senator MURRAY. Mr. Chairman, thank you for letting me jump in, I appreciate it.

Senator TESTER. Absolutely. I thank you, Senator Murray.

A couple questions more for the Corps, and then we'll go over to the Bureau of Reclamation.

CERTIFICATION COSTS

The Omaha folks from the Army Corps were in my office 10 days ago, and we talked about the certification issue. One of the things that they brought up that I didn't follow up with them, so I will with you, is could the Corps do certification? They've said it would cost a lot more for the Corps to do the certification than it would for a private engineering firm to do it. Is that correct, and if it is correct, why?

Ms. DARCY. I don't know if that's correct.

Senator TESTER. Okay. That's all—that's good enough.

Ms. DARCY. I couldn't tell you which was more costly.

Senator TESTER. Okay. That's cool. Since we've got the Corps and the Bureau of Reclamation here today, it is good to have you all here. And, by the way, from the lines of questioning, you've got a very difficult job, and I appreciate the work you do. Everybody's got their priorities, and it seems like some of them are at loggerheads with one another.

ST. MARY'S REHABILITATION PROJECT

But I want to ask you about a project in Montana we've talked about. The chairman of this subcommittee has helped with it a lot. The St. Mary's Rehabilitation Project. That project is probably nearly as old as Senator Bond's dad.

Last time I went out there, there were chunks of concrete falling off the dam. The Bureau of Reclamation has been getting appropriations for the studies to rehabilitate the project. In the last water bill, the Army Corps was authorized to do the project on a cost-share. Since you're both here, my question is, which one is going to take the lead?

Ms. DARCY. Did you see us looking at each other?

Senator TESTER. You can arm-wrestle in the middle, if you'd like.

Commissioner CONNOR. He who speaks first—is that the—

Ms. DARCY. The WRDA authorization of 2007 did give authority to the Corps and at that cost-share; however, it is not budgeted for in the Corps budget. And I think that the Bureau has \$3 million—is that right—for this year? I'm not—

Senator TESTER. So that indicates that the Bureau will be taking the lead.

Commissioner CONNOR. At this point in time, we have some resources.

Senator TESTER. Okay.

Commissioner CONNOR. We see a process to start dealing with the diversion dam issues with ESA; we can also look at rehabilitation. So, that's what's happening in 2010.

RURAL WATER PROJECT BACKLOG

Senator TESTER. Super. Commissioner Connor, you testified, I think last—it was last fall now that you have about \$2 billion in authorized rural water projects as a backlog. What are we going to do about it? Do you guys have a—do you have a plan for that to get them addressed? And the reason I bring it up is because—the comments I made in my opening statement. A project that I started working on 12 years ago that was \$100 million is—two of them. They were each \$100 million projects. Now they're each \$300 million projects. The money that's been appropriated over the—well, the money that's been appropriated, with the exception of the Recovery Act dollars, hasn't even kept up with inflation. And I'm sure they're all in that same boat if they're backlogged in. What do you have—I mean, what—what's your vision?

Commissioner CONNOR. Well, the vision right now is one that's an incomplete picture, quite frankly. Through the last 2 years with the increases in our budget that have been provided by Congress, plus the priority placed on rural water through the Recovery Act,

we've been fortunate to be able to invest something to the tune of \$460 million in these rural water projects. That still leaves a \$1.2 billion backlog in authorized projects, and if you add in the pipeline projects we're doing associated with Indian Water Rights Settlements, we are at the \$2 billion figure.

Senator TESTER. Correct.

Commissioner CONNOR. So, we've got a good work plan for 2010, even through 2011, since there's a large amount of construction activity. But then we're in a situation where there's a big gap in how we're going to fund. With respect to some of the Indian Water Rights Settlement programs, we've got some help on the way in 2020 through some direct expenditures that are available through the Reclamation Fund, and that was part of Public Law 111-11.

But right now, we are looking at a situation where, you know, the facts tell the story. We are at \$62 million per year, given the construction schedules and the need versus that \$1.2 billion, we are not keeping up with inflation dollars at this point in time, and we are looking at Government-wide flat budgets for the next few years. So, we will continue to try and prioritize the projects, get done what we can as we've done with prioritizing Garrison and Mni Wiconi this year. We may look at reallocating some funds, not much, but we are in the process of finalizing how we're going to reallocate Recovery Act funds to make sure we can meet the statutory deadlines. But I can't sit here and tell you I have a game plan that's going to solve that issue right now, in the coming years.

FORT PECK

Senator TESTER. All right. All right, last question—it actually goes off of Senator Bond's question. I wasn't going to ask this, but I've got to. We've got a little lake in Montana called Fort Peck, and a few years ago, when you flew over Fort Peck, it didn't look like a lake anymore; it just looked like a river because it was pretty well depleted. It has not—I don't think it's close to full pool at this point in time. I think it's got a long ways to go to get to that point. But it is better than it was a few years ago.

The question I had, since you—the Army Corps is responsible for that, is there enough water to take advantage of the recreational opportunities in a place like Fort Peck, that's critically important to their economy, and take care of our shipping needs downstream? Or is that—must that be prioritized? And what's the Army Corps's priority? Is it for the shipping or is it for recreation, as we move forward?

Ms. DARCY. Senator, I think, with regards to Fort Peck, the releases from Fort Peck into the Missouri River are, many of them, dictated by some endangered species that are downstream, as opposed to the shipping interests. I think we currently need to sustain the population of the pallid sturgeon and the least tern—

Commissioner CONNOR. And—

Ms. DARCY [continuing]. On the Missouri, in that stretch of the river between Fort Peck and the Missouri. That is what is helping to dictate the operation manual for Fort Peck.

Senator TESTER. So, it isn't dictated off of shipping?

Ms. DARCY. It's dictated off of the authorized use of Fort Peck, of the Fort Peck Dam that was built there.

Senator TESTER. Okay. Let me back up a little bit. Is release based off of endangered species or is it—is it based off of shipping needs downstream?

Ms. DARCY. It's based off of the authorized purpose of the Fort Peck Dam.

Senator TESTER. Which is?

Ms. DARCY. Which is—I believe it is recreation and——

Senator TESTER. Okay.

Ms. DARCY. It is multi-purpose.

Senator TESTER. Just—yes.

Ms. DARCY. I know its recreation.

Senator TESTER. Yes.

Ms. DARCY. But I know—but I know part of what is determining the operation—when the master manual was redone——

Senator TESTER. Yes.

Ms. DARCY [continuing]. In the late 1990s.

Senator TESTER. Yes.

Ms. DARCY. Consideration had to be made for the endangered species downstream.

Senator TESTER. Okay. We'll continue the dialogue as we move forward because, as we talk about flooding downstream in the Missouri River, I don't think it's going to come out of the mountains of Montana. We're at about 60 percent of normal in snow pack. And so, that's going to put the water level at Fort Peck becoming a big issue again, as it always is.

I want to thank you all for being—Senator Bennett, did you have anything?

ADDITIONAL COMMITTEE QUESTIONS

At this time I would ask the subcommittee members to please submit any questions they have for the record.

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

QUESTIONS SUBMITTED TO HON. JO-ELLEN DARCY AND LIEUTENANT GENERAL
ROBERT L. VAN ANTWERP

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

GENERAL BUDGET QUESTIONS

Question. The budgetary criteria used for determining the budget request is not statutory, correct?

Ms. Darcy. Yes, that is correct.

Question. How is the criteria developed?

Ms. Darcy. The budgetary criteria were developed in response to the Government Performance and Results Act, establishing Civil Works business lines and developing criteria to delineate performance and prioritize programs, projects, and activities for inclusion in the budget.

The four principal metrics for the Civil Works program are, in brief, Benefit-to-Cost Ratio, (BCR), potential to contribute to human safety, potential to cost-effectively restore important aquatic ecosystems, and effectiveness in reducing risk of failure in high consequence situations. Applicable criteria are applied to each project. Where more than one criterion applies to a project, these criteria are considered in conjunction to make a balanced decision on a project's merits. The Corps continues to refine the performance metrics.

Question. What happens if a project that the administration determines to be worthwhile does not meet the established budgetary criteria?

Ms. Darcy. All eligible projects that are consistent with administration policies compete on a level playing field for inclusion in the budget. Projects that are considered for budgeting are consistent with the Corps' main mission areas and the projects' environmental and economic performance. Projects that do not meet budgetary criteria are not included in the budget.

Question. Is the criteria adjusted during preparation of the budget?

General Van Antwerp. Adjustments to the criteria are occasionally made during formulation of the President's budget to reflect administration priorities. For example, ongoing non-structural projects with BCRs of 1.0 or greater were considered for funding in fiscal year 2011 because of the importance to the administration of ecosystem restoration and non-structural solutions to water resource challenges. The BCR thresholds for inclusion in the budget also may vary over time, depending on the funding available for the Civil Works program within the President's overall priorities.

Question. How would the budget request differ if you only used the statutory requirements for considering projects?

Ms. Darcy. Statutory requirements do not provide a basis for prioritizing eligible projects for funding. BCRs, Regardless of what criteria are used, projects still need to be prioritized for funding, because the universe of authorized projects far exceeds the amount of funding available.

Question. Would it be correct to say that the budgetary criteria are arbitrarily changed from year to year to accommodate funding amounts or does the budgetary criteria drive the funding amounts provided?

Ms. Darcy. Budgetary criteria can change periodically to reflect changing National priorities, but that does not mean they are arbitrary. Objective performance criteria are used to determine the high performing projects to be included in the President's budget. The total amount of funding available in the budget for the Civil Works program is a function of the President's overall policies and priorities.

Question. How do you explain the reduced request from fiscal year 2010 to fiscal year 2011?

Ms. Darcy. The fiscal year 2011 budget supports the administration's commitment to constrain the overall level of non-security discretionary spending. The fiscal year 2011 funding level reflects a practical, effective, and sound use of the Nation's financial resources.

ARRA

Question. Why has the administration consistently refused to fund shore protection projects with ARRA particularly when in some cases these projects have higher benefit to cost ratios than projects the administration has chosen to fund?

Ms. Darcy. Last Spring, the administration allocated ARRA funds to high priority infrastructure work. At the same time, the administration engaged in a review of executive branch policies for shore protection projects. Subsequently, shore protection projects with the highest benefit cost ratio were included in the President's fiscal year 2011 budget.

Question. What is the status of the obligation of the ARRA funding?

General Van Antwerp. Approximately \$3.2 billion, or 70 percent of the total of \$4.6 billion, has been obligated.

Question. How much of the ARRA funds have gone to small businesses?

General Van Antwerp. To date, 73 percent of all ARRA contracts and 45 percent of ARRA funding, or \$1.3 billion, went to small businesses.

Question. How do the projected jobs to be created by ARRA compared with the actual job creation?

General Van Antwerp. Comparisons are difficult for several reasons: Not all recipients of Civil Works ARRA funds reported initially, and there was uncertainty about how to calculate the jobs supported by ARRA funds. Also, recipients of ARRA funds do not report jobs supported by their subcontractors, which likely is a significant number for the construction and maintenance work the Corps has funded. I understand that the rule of thumb used by the Council of Economic Advisers is \$92,000 per job. For \$4.6 billion, this would translate into about 50,000 jobs over the total period of spending. For the fourth quarter of fiscal year 2009, recipients of Civil Works funds reported that Recovery Act funds were creating or retaining jobs at an annual rate of 2,145. In the second quarter the number of jobs reported to be created or retained was 6,047 at an annual rate.

Question. How accurate do you feel your job creation count is?

General Van Antwerp. There have been challenges with under-reporting and data accuracy. The Corps is working closely with ARRA recipients to ensure complete job data is provided for the recovery reporting job count. The target for the next fiscal

quarter is 100 percent accuracy in reporting by 100 percent of the recipients required to report.

NEW ORLEANS TECHNICAL REPORT ON CATEGORY 5 PROTECTION

Question. Is the Louisiana Coastal Protection and Restoration technical report complete? It is now over 2 years overdue for submission to Congress. Where is the report now and when do you plan to submit it to Congress?

General Van Antwerp. The Corps of Engineers has completed its technical evaluation and transmitted it to the Assistant Secretary of the Army for Civil Works. Additional information will be provided to the Assistant Secretary's office as soon as possible, to enable completion of their review.

Question. Once the State of Louisiana has provided input on its' views regarding the Louisiana Coastal Protection and Restoration Report and you provide the report to Congress, how will you move forward on the findings of the report?

General Van Antwerp. The Corps will engage with the State to establish a cost sharing agreement and establish priority coastal areas and risk reduction options for further evaluation. Some of the final risk reduction options identified in the Louisiana Coastal Protection and Restoration Technical Report are already being incorporated for further evaluation under other ongoing feasibility study efforts such as Donaldsonville to the Gulf of Mexico and Southwest Louisiana Coastal studies.

Question. The Mississippi Coastal Improvements program report, started at the same time as the Louisiana report, recommended near term and long term solutions—some of which have already been funded. In the drafts of the Louisiana report, there seems to be more of a focus on providing options without providing recommendations. If you as our experts cannot make recommendations to improve hurricane and storm damage protection along the Louisiana coast, who should be making those recommendations?

General Van Antwerp. The findings of the Louisiana Coastal Protection and Restoration technical analysis identified multiple effective approaches for greater reduction of risk in any specific area of coastal Louisiana. However these approaches produce varying levels of risk reduction in exchange for varying and significant exchanges, or tradeoffs, of impacts to the public directly, social and economic viability, and the environment, in addition to a range of significant fiscal investment at the Federal and State level. As a result it is viewed as critical that the final recommendations involve an interactive consideration of the risk tradeoff values of the affected communities and region and not be solely a function of technical evaluation by the Corps.

LOUISIANA HURRICANE PROTECTION SYSTEM

Question. What is the status of the repairs to the existing hurricane protection system?

General Van Antwerp. By June 2006, the Corps had repaired and restored 220 miles of the system to the pre-Katrina level of protection. The Corps also constructed 5 new safe rooms so pump station operators can safely operate during storm events; added storm proofing features to pump stations in Jefferson Parish for more than \$28 million; completed 47 pump station repairs in Jefferson, Orleans and St. Bernard parishes for a total of more than \$56 million; and awarded contracts for 16 pump station repairs in Plaquemines Parish for more than \$19 million—all completed with the exception of the Elaine Pump Station which is scheduled for completion in November 2010. The safe rooms and pump station repairs were all 100 percent Federal funded.

Question. What is the status of the improvements to the existing system funded by Congress?

General Van Antwerp. The Corps has made significant progress on the Hurricane Storm Damage Risk Reduction System (HSDRRS) in the last 4½ years. More than 240 construction contracts have been awarded. To date, \$7.4 billion (or 51 percent) of the almost \$15 billion program for the HSDRRS Program has been obligated, including almost \$2 billion worth of direct contracts to small business firms.

The system is now stronger and more resilient than at any time in history. Execution of the HSDRRS is more than one-third complete. The Inner Harbor Navigation Canal Surge Barrier at Lake Borgne is over 50 percent complete. The West Closure Complex, another major navigable surge barrier and pump station that will reduce storm surge risk for the West Bank, is 20 percent complete. Floodwall and levee projects in New Orleans Metro area are 90 percent complete.

Question. Will the system be functional by June 2011 as promised in the previous administration?

General Van Antwerp. We remain confident in our ability to deliver the 100-year system on schedule and within budget. I would note that the Corps shares responsibilities with local sponsors and other partners who must provide real estate interests, borrow areas, relocations and other technical matters, to deliver the HSDRRS program to the public within the cost and schedule commitment. The support and contributions of partners and stakeholders are essential to execute this immense and complex program.

The HSDRRS is a top priority of the Corps of Engineers; the Corps is using the overall resources of the entire Mississippi Valley Division and other Corps expertise from across the Nation to keep the program on schedule and deliver on the commitment to having the physical features in place to provide 100-year level of risk reduction by hurricane season 2011.

Question. What do you see as the current weak link in the system?

General Van Antwerp. The Corps of Engineers undertook an exhaustive scientific analysis to determine the physical features and design elevations necessary to deliver a uniform system of storm surge risk reduction for the Lake Pontchartrain and Vicinity and West Bank and Vicinity projects. Upon completion of physical features of the system in 2011, the project will deliver a uniformly robust and resilient system, built to provide a 100-year level of risk reduction.

Question. There has been considerable discussion over the replacement of the temporary pump stations constructed on the three main outfall drainage canals after Katrina. The city wanted the replacement stations to also replace the existing pump stations on the canals so that water would only have to be pumped once. Congress rejected this proposal in the fiscal year 2010 E&W Act. Am I correct that this would not improve hurricane surge protection or storm damage reduction?

General Van Antwerp. That is correct. The city's preferred plan, Option 2 or 2a, provides no greater level of storm surge protection than Option 1, the current plan to replace the temporary pump stations with permanent, robust structures.

Question. What would the plan that the city desires do exactly? Do any additional benefits accrue to the Federal Government or are they all local benefits?

General Van Antwerp. Option 2 significantly modifies the city's interior drainage by deepening and lining the outfall canals to accommodate gravity flow of interior rain water to Lake Pontchartrain, eliminating the need for pump stations at the interior of the canals. The estimated cost (pre-feasibility level of design) is \$3.4 billion.

Option 2a adds a plan to intercept and divert Jefferson Parish (Hoey's Basin) rain water from the 17th Street canal to the Mississippi River. The estimated cost (pre-feasibility level of design) is \$3.5 billion.

Options 2 and 2a provide no greater level of storm surge risk reduction than Option 1, the planned permanent canal closures and pumps. Option 2 is a complex construction project that would take several years to construct, at considerable impact and disruption to the surrounding communities.

No additional benefits accrue to the Federal Government.

Question. Will the system work as the Corps has currently proposed? Has it been tested?

General Van Antwerp. The proposed plan to build permanent closures and pump stations at the mouths of the three outfall canals will replace the temporary features in place today. These temporary features performed exactly as planned during the coordinated pumping operations with the Sewerage and Water Board during Hurricanes Gustav and Ike. The Corps exercises these pumps frequently during regular operations and maintenance as well as emergency operation exercises conducted with our partners at the Sewerage and Water Board.

The permanent pump stations will have the capacity to handle the current and planned future capacity of the S&WB.

Question. I understand that the Corps has agreed to modify, at Federal expense, the permanent pump stations on the outfall canals so that the State could install the locally preferred plan at a later date. Has the State signed the cost sharing agreement on the replacement of the temporary pumps for the three major outfall canals?

General Van Antwerp. The Corps has committed to replacing the temporary pump stations in a way that would facilitate later improvements to the local interior drainage system, should they be authorized and funded or constructed by the State in the future.

The Army plans to execute a Project Partnership Agreement (PPA) Amendment with the State of Louisiana, Coastal Protection and Restoration Authority (CPRA) on March 12, 2010.

Question. What is considered the design life of the temporary pumps?

General Van Antwerp. The temporary pumps were designed and built in time for the June 2006 hurricane season. They have a limited project life (5–7 years).

Question. What does that mean? Will the pumps fail or won't they?

General Van Antwerp. The Corps will provide the necessary maintenance of the temporary pumps to assure their operability until they are replaced. The temporary pumps will experience diminished reliability and increased maintenance costs the longer they are kept in service.

Question. Does not initiating construction going to drive completion of the permanent pumps past the point of when the temporary pumps will become much less reliable?

General Van Antwerp. Following the scheduled execution of a Project Partnership Agreement Amendment between the Army and the State of Louisiana on March 12, 2010, the Corps will have the ability to move forward to provide robust, sustainable protection at the outfall canals. The Corps anticipates completion of the permanent closure structures and pump stations by fall 2014.

Question. Isn't the delay in initiating construction of the permanent pumps putting the citizens of New Orleans at increased risk WHEN, not if, the next hurricane hits?

General Van Antwerp. The temporary closure structures and pump stations at the three outfall canals currently provide 100-year level of risk reduction. However, they have a limited project life (5–7 years). The Corps will provide the necessary resources to ensure their operability until the permanent closure structures and pump stations are constructed.

NATIONAL LEVEE INVENTORY

Question. Please report on progress on the National Levee Inventory: How many levee miles have been inventoried to date?

General Van Antwerp. (1) Civil Works Program—14,000; (2) Other Federal Programs—0; and (3) Non-Federal Programs—0.

Question. How many miles within WRDA 2007 authorities remain to be inventoried?

General Van Antwerp. (1) Civil Works Program—Complete; (2) Other Federal Programs.—Number of miles unknown. Will start to identify levees in fiscal year 2010–2011; and (3) Non-Federal Programs—Number of miles unknown. Will start to identify levees in fiscal year 2010–2011 to the extent voluntarily provided by States and local communities.

The Corps will continue to expand the National Levee Database (NLD) to other Federal agencies and all the States. In accordance with title IX, USACE will implement a process to collect available levee information from States and communities for inclusion in the NLD. Additionally, the Corps will work with stakeholders to facilitate their use of the NLD for local levee safety programs.

ALLOCATIONS OF FISCAL YEAR 2011—\$15 MILLION

Question. National Levee Inventory—\$10 million to inventory yet to be determined levee miles.

General Van Antwerp. Activities will include: (1) work with States, other Federal agencies, tribes, and communities on the transfer of technology and practices on levee inventory; (2) inventory newly eligible levees within the Corps' authority; (3) operate and maintain the National Levee Database; and (4) prepare a report to Congress on the general condition and consequences of failure of levees within the Corps' authorities.

The Corps is developing policy and procedures required for the implementation of Tolerable Risk Guidelines (TRG) within its Levee Safety program. The TRG build on the TRG policies implemented for the Corps Dam Safety Program, include stakeholder review and feedback, and serve the purpose of providing a framework for consistent, risk-informed decisionmaking on the built levee infrastructure. We anticipate having final policy and procedure completed within the timeframe of the comprehensive Levee Safety Engineering Regulation currently under development and to be published in Jan 2012.

Question. National Committee on Levee Safety—\$5 million to do what?

General Van Antwerp. The National Committee on Levee Safety (NCLS) will work to further develop the governance structure of the Commission, a stakeholder involvement plan, and a strategic plan to implement recommendations in the Report.

NCLS recommendations can be found at <http://www.iwr.usace.army.mil/ncls/>.

Question. What is the plan for completing the National Levee Inventory to the full extent of the WRDA 2007 authorities?

General Van Antwerp. For the inventory and inspection, the Corps is preparing a rollout strategy for the public release of the National Levee Database. There will be different levels of access depending on the user—Federal agency, State/local

agencies, or general public. In the second quarter of fiscal year 2010, the Corps will initiate a survey (the Levee Census) by questionnaire that will define unique identifiers for levee segments and facilitate development of the inventory of levees by name and location. The elements of the survey will contain requirements to determine the number of miles of levees in the national inventory and other key attributes to define the scale of effort in building a comprehensive National Levee Database. By the first quarter of fiscal year 2011, the Corps will finalize a report summarizing the results of the questionnaire and guidance for non-Federal stakeholders to voluntarily provide available levee information.

Once the National Committee on Levee Safety completes further development of recommendations and the strategic plan, this requirement of title IX of WRDA 2007 will be complete in fiscal year 2011.

Question. Is additional authorization needed to expand the National Levee Inventory to include all levees in the Nation?

General Van Antwerp. Currently, title IX of WRDA 2007 only provides the Corps the authority to collect available information for levees outside the Corps' program only if it is voluntarily provided by State or local governmental agencies. Since levee information in many cases is scarce or nonexistent, completing a comprehensive National Levee Database based on available information may not be achievable. The Corps does not have the authority to conduct a one-time inventory and inspections of all levees in the Nation, although such an inventory and inspections could provide the quality of data necessary in a more accurate national inventory that would include the general condition of the levees. The term "inventory" includes surveying/geo-referencing all features of the levee to populate the database. "Inspection" in this case would be defined as the Corps periodic inspection for levees, which is an inspection conducted by a multi-disciplinary team that verifies proper operation and maintenance; evaluates operational adequacy, structural stability and, safety of the system; and compares current design and construction criteria with those in place when the levee was built.

NORTH DAKOTA FLOODS

Question. Based on past experience with the 2008 flooding, what is the Corps doing to prepare (advance measures) for potential flooding in North Dakota?

General Van Antwerp. While there were significant floods in the Midwest (in particular on the Cedar River in Iowa) during 2008, even more experience was gained when a flood of record was set in Fargo, North Dakota during the spring of 2009. The James River Basin, located in North and South Dakota, also set pools of record in 2009 which led to many lessons learned about preparing and installing emergency levees. The greatest lesson learned from the 2008 and 2009 flooding was to engage locals, State, and congressional officials as early as possible.

Since January 2010, the Corps' St. Paul and Omaha Districts have been engaged with the National Weather Service (NWS) and the U.S. Geological Survey in preparing for potential flooding in the Red River basin. The Corps is currently preparing to activate the St. Paul District Emergency Operations Center and to deploy its flood fighting assets for the upcoming flood fight on the Red River of the North river basin. Contracts for emergency construction will be in place up to an entire month prior to the potential flooding.

The Corps has been receiving requests for advanced measures projects and currently has 15 project information reports in various stages, from preparation to review for construction of flood risk management features.

The Corps put flood engineers on the ground this week, meeting with local officials to determine flood fight needs. To date, the Corps has received requests for technical and/or direct assistance from North Dakota's Cass and Richland counties and the cities of Fargo, Lisbon, Oxbow, Enderlin, Grafton, Harwood, North River, Jamestown, LaMoure and Fort Ransom. Corps personnel are currently meeting with these communities and providing technical assistance in preparing for this year's potential flood event.

Corps reservoirs in North Dakota and Western Minnesota are being drawn down to provide the maximum flood control storage in anticipation of the high spring snowmelt runoff. These draw downs are part of our normal operation procedures, but are being coordinated with local agencies because they are being done in an accelerated way.

Question. Does the Corps have adequate resources and funds available?

General Van Antwerp. Funding, supplies and flood fight personnel are expected to be sufficient for a successful flood fight. The States of North Dakota and Minnesota have specific information on the Corps' inventories and understand that we

will release our equipment at their request, once local, county and State materials have been exhausted.

Question. What is the forecast for a potential flood this year?

General Van Antwerp. According to the 2010 National Oceanic and Atmospheric Administration, (NOAA) National Hydrologic Assessment, there is an above average risk of significant flooding across North Dakota this spring. The document notes that early season heavy rain saturated soils which froze deeply before snow fell across the northern Plains, and combined with substantial snowpack, has created an area of above average flood risk.

The area of snow cover is more extensive than last year, creating the potential for a more widespread flooding event. The Red River at Fargo, North Dakota is expected to exceed the major flood stage. Locations that have a greater than 90 percent risk of reaching or exceeding major flood level are Fargo, Abercrombie, Lisbon, Harwood, and West Fargo. Additional locations that have a greater than 50 percent chance of reaching or exceeding major flood level include Wahpeton, Valley City, Halstad, Grand Forks, Oslo, Drayton, Pembina on the Red River of the North, and Grafton on the Park River. Deeply frozen rivers which froze at a high level in the region have created an above average risk of ice jam flooding. The Souris Basin has been spared significant rain so far this winter, but heavy snowfall has resulted in a snowpack that is in many ways comparable to that of last year at this time, especially in the immediate Minot area. The areas north and west of Minot hold less snow and water equivalent overall and continue to decrease upstream of Lake Darling.

Question. Is the ongoing Red River of the North study addressing potential future flooding?

General Van Antwerp. Yes, the study is developing a Watershed Management Plan which will identify possible flood storage locations, provide technical assistance for local communities developing levee plans, and develop detailed models allowing for easier implementation of local plans.

Question. Given the damages resulting from the 2008 floods, what other measures should be taken to lessen impacts from future flooding?

General Van Antwerp. The June 2008 flooding of the Midwest led to a significant amount of Federal disaster flood relief given to victims. The lesson learned for lessening impacts is to start the flood preparations earlier and engage officials many months prior to the expected flood. While there are several actions that should be taken to lessen the impacts of flooding, there is nothing that can eliminate flood risk and impacts.

The best way to lessen the impacts of future flooding is to prevent development in the floodplain. This allows rivers to continue their natural use of the floodplain and ensures that stages in existing developed areas are not increased due to encroachment by additional development. Local governments should enact and enforce strict floodplain development ordinances.

Buying out flood impacted properties and relocating people out of the floodplain is another important way to prevent future damages. The Federal Emergency Management Agency (FEMA) provides some funding for buyouts, but local and State governments are also actively purchasing properties without Federal assistance. When FEMA funds a buyout, the Agency places a deed restriction on the property that prevents future uses of the land, including construction of flood control measures. When local funding is used, no restrictions need to be imposed, so permanent or emergency measures can be built to protect remaining properties.

Other measures that should be considered include constructing levees, diversions, and flood storage where such measures can be justified. Non-structural approaches including raising existing structures above the flood level can also be effective in reducing flood damage. The Corps of Engineers is considering these alternatives in several studies, including the Fargo-Moorhead Metro feasibility study, the Fargo-Moorhead and Upstream study, the Red River Watershed Study, and the reconnaissance studies for the Sheyenne River Basin and Valley City, North Dakota.

Finally, all property owners located in or near a floodplain should purchase flood insurance through the National Flood Insurance Program. Although this will not prevent flood damage or the personal disruption caused by flooding, it does mitigate the financial risk to individuals.

FARGO-MOORHEAD

Question. When will the Fargo-Moorhead Metro study be completed?

General Van Antwerp. The study is currently on an aggressive schedule for a Chief of Engineers report to be completed by December 2010.

Question. What is the likelihood that the Federal Government would recommend and cost share a 35,000 cfs Minnesota diversion?

General Van Antwerp. The National Economic Development (NED) plan is still undergoing refinement. Initial results identified it as a 20,000 cfs diversion through Minnesota, but, there now appear to be a number of factors supporting a larger Minnesota diversion as the NED plan. The next step is for the Corps to fully develop the rationale for recommending a larger plan, and then submit a request for a waiver of the NED plan in favor of selecting a larger plan as the Federal supported improvement plan to the Assistant Secretary of the Army (Civil Works) for approval.

Question. Would the administration support and budget for a North Dakota diversion as a locally preferred plan?

Ms. Darcy. A Locally Preferred Plan (LPP) has not been identified by the local interests. Once an LPP is identified, it would require administration review and approval. While preliminary coordination has been initiated, administration support of a North Dakota diversion as an LPP is subject to review of documents supporting the plan. A locally preferred plan with the non-Federal sponsor bearing the costs above the NED plan and a BCR above 1.0-to-1 would be consistent with long-standing policy. However, whether the project would be budgeted is a future decision, and the project would need to compete with other worthy projects for funding in the President's budget.

DEVILS LAKE LEVEE RAISE

Question. What is the status of the Devils Lake embankment raise and are there any issues that could delay construction?

General Van Antwerp. Phase 1 construction is ongoing and the Independent External Peer Review for this work is scheduled for completion on March 24, 2010 so the Notice to Proceed on the embankment work can be issued. The design is being completed on Phase 2, although due to poor soils and additional design challenges, the decision has been made to split the work into 2 contracts. Phase 2A is scheduled to be advertised later this summer. The Corps is continuing to work with the city and local residents to ensure the project is completed in a timely and safe manner, although there are a number of challenges to be addressed. Issues that could delay construction include: (1) acquisition of the real estate on an aggressive schedule, including the relocation of homes and businesses; (2) completion of the environmental review; and (3) addressing the poor soil conditions to ensure the structure can be constructed safely while under load (holding back water).

Question. Does the project provide 100-year flood protection?

General Van Antwerp. No Sir. Previously, the Corps provided a letter to FEMA stating that there was reasonable assurance that the embankment could contain the 1 percent event. Since then, the lake has risen such that the position taken in that letter is no longer applicable. An updated letter is being prepared at FEMA's request. One hundred-year protection will not be achievable until the entire alignment is complete.

BAYOU METO, AR&LA

Question. This project was funded in fiscal year 2010 for construction. Has the Project Partnering Agreement (PPA) been signed by the sponsor?

Ms. Darcy. No, the PPA has not been signed by the sponsor.

Question. Why did this project not receive ARRA funds?

Ms. Darcy. During initial identification of projects to receive ARRA funds in the April 2009 timeframe this project had not received construction funds and, therefore, was considered to be a new project. ARRA specifically prohibits funding new Civil Works projects with ARRA funds.

GRAND PRAIRIE, AR

Question. What is the status of the Grand Prairie project?

General Van Antwerp. Construction is continuing on the Grand Prairie project under a PPA executed in June 2000. The project sponsor continues to provide their share of project costs. Four items are currently ready to be advertised: (1) DeValls Bluff, AR Pumping Station sub-structure \$6.5 million Federal share; (2) DeValls Bluff, AR Pumping Station super-structure, pending Federal funds \$21.7 million; (3) DeValls Bluff, AR Pumping Station discharge and outlet structure, pending Federal funds \$16.8 million; and (4) DeValls Bluff, AR Pumping Station electrical sub-station, pending Federal funds \$3 million.

Question. This project has work ready to be executed that meets the criteria for ARRA funds. Why wasn't this project funded with ARRA funds?

Ms. Darcy. There are more projects eligible for funding than there is ARRA funding available. Therefore, this project, like many others, competed for these funds and the determination was made that there were other more worthy projects that provide a high return on investment in the Corps traditional mission areas of flood damage reduction, navigation, and environmental restoration.

OZARK-JETA TAYLOR PROJECT, AR

Question. I note that this powerhouse rehab project is not in your budget this year. Why?

General Van Antwerp. Ozark-Jeta Taylor, Powerhouse Rehab, AR project is not in the budget because it did not meet the performance-based construction guidelines used to prioritize projects in the fiscal year 2011 budget.

Question. Last fiscal year you used ARRA funds to avoid terminating the contract. Is lack of funding in the fiscal year 2011 budget going to again force you to consider a contract termination?

General Van Antwerp. Customer funding will be requested through the Southwestern Power Administration (SWPA) to fund anticipated contractor earnings in fiscal year 2011. If SWPA is unable to obtain Customer funding, the Corps will proceed under the provisions of the "special" continuing contract clause to terminate the contract at the convenience of the Government. The Corps anticipates making a decision on the way forward within the next couple of months.

Question. How much will it cost to terminate the contract versus provide funding in fiscal year 2011?

General Van Antwerp. It will cost \$20 million to terminate the contract. The Corps could use \$23.5 million in fiscal year 2011 but I must add that the capability estimate for each study or project is the Army Corps of Engineers estimate for the most that it could obligate efficiently during the fiscal year for that study or project. However, each capability estimate is made without reference to limitations on manpower, equipment, and other resources across the Army Civil Works program, so the sum of the capability estimates exceeds the amount that the Corps actually could obligate in a single fiscal year.

QUESTIONS SUBMITTED BY SENATOR ROBERT C. BYRD

Question. In June 2009, the administration released a Memorandum of Understanding (MOU) entitled "Implementing the Interagency Action Plan on Appalachian Surface Coal Mining."

The MOU noted that "Federal agencies will work . . . to help diversify and strengthen the Appalachian regional economy and promote the health and welfare of Appalachian communities. This interagency effort will have a special focus on stimulating clean enterprise and green jobs development. . . ."

How will the Corps implement this new focus during its review and prioritization of projects and proposed activities? For instance, how will the Corps exercise a special focus on economic diversification and clean enterprise, during the course of conducting its "public interest review" of proposed activities?

General Van Antwerp. Stimulation of clean enterprise and green jobs development may result in increased project permit applications requiring authorization to discharge fill material into waters of the United States. If these projects would result in the construction and implementation of energy projects, they would receive higher priority regulatory review from the Corps over non-energy related projects. This higher priority review for energy-related projects is based on both the Corps implementing regulations for section 404 of the Clean Water Act and Executive Order 13212.

In accordance with 33 CFR 320.4(n), district engineers will give high priority to the processing of permit actions involving energy projects. Further, under Presidential Executive Order (EO) 13212, dated July 30, 2001, all Federal agencies have been directed to expedite their review of permits for energy-related projects or take other actions as necessary to accelerate the completion of such projects, while maintaining safety, public health, and environmental protections.

With respect to the Corps' public interest review, the decision whether to issue a section 404 permit is based, in part, on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. Decisions reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors that may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environ-

mental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. Any positive effects of a proposed project are balanced against any foreseeable negative effects the activity would have on relevant factors within the Corps' scope of Federal control and responsibility. AA permit will be issued if the project is found not to be contrary to the public interest.

Question. What new resources is the administration requesting for the Corps to advance economic diversification in Appalachia?

General Van Antwerp. The Corps does not have a specific action in this area.

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

Question. The Army Corps of Engineers operates or has authority over a large quantity of space behind dams for flood control purposes. California is still recovering from 3 years of drought, and the water situation is likely to remain critical, or near critical, for years to come.

To what extent can the Army Corps reoperate, or change the management, of some of its projects to consider water supply benefits in key areas across the State, including those on tributaries to the Sacramento-San Joaquin Delta, and on rivers and streams throughout Southern California?

Will you report back on potential for water supply benefits from projects like Whittier Narrows, Prado Dam, Hanson Dam, and Seven Oaks?

Ms. Darcy. There may be potential for additional water supply benefits from existing Corps flood control reservoirs throughout California. The Army recognizes the balance to address flood risk management and dam safety, along with the safety of the public and water supply demands. Currently, the Army is coordinating with co-operators to operate the reservoirs for both flood control and future water supply during these critical dry years. In those instances where there is potential for significant water supply benefits, an appropriate means of addressing improved reliability of water supply would be to seek reauthorization to reallocate reservoir storage and add water supply as a project purpose in those cases where it is not already an authorized project purpose.

Additionally, there are ongoing feasibility studies to assess water supply and conservation. For example, the Army is conducting a Reservoir Re-operation study as part of the Central Valley Integrated Flood Risk Management Study. The Corps is completing a water quality study and evaluation of water conservation at the Seven Oaks Dam as part of the Santa Ana River Mainstem project. Also, issues such as water conservation and addressing Dam Safety related to the Whittier Narrows dam are being assessed. These studies have potential to provide water supply benefits at existing projects.

Question. I am concerned about the Dam Safety Assurance Program. This program is supposed to fund the most critical dam improvement projects in the Nation. However, the President's budget only includes \$49.1 million. I understand that the capability for the program is \$70.4 million.

Why is the President's budget not at the Corps Capability for this program? Is Dam Safety a top priority for this administration?

Ms. Darcy. Individual dam safety, seepage and instability correction projects that are budgeted for construction are funded at capability, and are funded in the 2011 budget to a total of \$446 million. The separate line-item for planning and design of additional such projects—the Dam Safety and Seepage/Stability Correction Program (DSS)—is funded at \$49.1 million, which will be allocated to priority dam safety studies and design. The amount was determined to be the correct amount for fiscal year 2011, in consideration of funding available overall for the Civil Works program.

Question. The Corp is developing new national policies for the allowance and/or removal of trees and other vegetation from levee projects. Meanwhile, the Corps has participated in a collaborative effort with the State of California to develop vegetation-removal guidelines for the Central Valley. This collaborative effort holds promise for reaching a reasonable and balanced program for assuring levee integrity and, at the same time, taking into consideration unique circumstances and resources found in many areas in the Central Valley, and the Corps' past involvement with the region's levees.

Can you assure me that your national policy will embrace and be fully compatible with situations like those found in the Central Valley? How will the national guidance accommodate the collaborative effort you've participated in for California?

General Van Antwerp. The Army is committed to collaborating with California and other stakeholders in flood risk management in a systematic manner. The implementation of system-wide flood risk management strategies such as the one developed for the Central Valley is one of the Corps' top priorities for water resources actions nationwide. National policies for vegetation are incorporated into the collaborative solutions developed and implemented to address both national resource and public safety goals. The California Framework Agreement will continue to be the guiding document as the State of California continues to develop its long-term plan to resolve vegetation issues; a plan we understand will be finalized in July 2012.

Question. The administration included two new construction starts in the Corps' portion of the President's fiscal year 2011 budget. How were the two "new starts" in the President's budget selected? What criteria were used? What did the administration hope to demonstrate through selection of these particular projects?

Ms. Darcy. The two projects are priorities that demonstrate this administration's commitment to Ecosystem Restoration and non-structural solutions to water resource challenges.

Question. The President's budget request reduced the enacted funding level for the Corps by \$500 million. This has been cited by some as a reason to keep new starts to a minimum. On the other hand, it could also be argued that, in tight budget times, it is even more important to make the best possible use of scarce resources, and that some old projects should be discontinued, while newer projects that represent a better way of doing business are moved forward.

Will the administration be reviewing priorities to determine whether some projects should be scaled back or discontinued in order to allow construction to begin on newer and better designed projects that contribute more significantly to national public safety and environmental goals?

Ms. Darcy. As in previous years, the administration's budgets for the Army Corps of Engineers will focus funding on those projects with the highest net economic and environmental returns to the Nation, highest contributions to reducing risk to human safety, and highest contributions to environmental restoration in order to efficiently realize the benefits of those projects. New starts are not precluded as a general rule. The selection process focuses on the highest return studies and projects that are the administration priorities for that particular year.

SPECIFIC CALIFORNIA PROJECTS

Question. In February, I wrote to you about the dam safety seismic remediation project at Success Dam. I appreciate the response I received this week to that letter. However, the lack of funding in the President's budget for this project continues to concern me about this project and the Army Corps of Engineers' commitment to dam safety in general.

Why was there not enough funding in the President's budget to do anything on this project in fiscal year 2011, now that real estate acquisitions and construction are ready to move forward?

Is Success Dam no longer a safety threat?

Ms. Darcy. The Army is committed to dam safety and regards public safety as a crucial mission and obligation to our Nation. The Corps is prioritizing dam study and repair nationally, based on risk informed decisions to maximize benefits of our dam safety investments. There are risks associated with Success Dam, but other Corps projects pose greater concern at this time, based on the Corps improved understanding of structural performance and risk consequences.

Even though Success Dam is not in the highest risk class, the study is still underway. In 2010, past and present study methods are being analyzed to determine if the overall project approach can be revised to reduce risk in a more cost effective and timely manner. Also, interim risk reduction planning has been performed to provide the downstream communities additional levels of flood risk reduction. The interim safety measures will remain active until the remediation is complete.

Question. Hamilton City Flood Control is a project in my State of California that will produce both flood risk reduction and ecosystem restoration benefits. It involves construction of a new 6.8 mile-long set-back levee to provide enhanced protection for an economically challenged community of 2,500 on the Sacramento River while reconnecting over 1,400 acres of floodplain to the river—allowing for ecosystem restoration that benefits several species listed as threatened or endangered. It will also provide enhanced protection for the community's sewage treatment plant, and therefore produces water quality benefits.

It has been cited as a model for collaboration among diverse stakeholders, and for achieving multiple societal goals simultaneously. It would seem to be an excellent

example of a new and better way of doing business at the Corps. It is also ready to go. Design is complete, and the non-Federal cost-share has been secured.

Since this project appears to encapsulate the administration's goals for multi-benefit projects, I believe it would be an excellent project for consideration in the President's fiscal year 2012 budget. What else does the Hamilton City project need to do to be included in the President's fiscal year 2012 budget?

Ms. Darcy. The Hamilton City project satisfies the administration goals and objectives by emphasizing Ecosystem Restoration solutions to water resource challenges. This multipurpose project also meets numerous State, local and other non-governmental agencies objectives and goals for public safety, environmental stewardship and restoration.

The project's design phase is fully funded and the Corps expects to complete it this year. The project will be considered along with other high performing projects in the Nation for consideration by the administration for New Starts in fiscal year 2012.

Question. Last November, I wrote to alert you that the Sacramento District had encountered a cost-increase for their scheduled repairs to Marysville Ring Levee, which surrounds and protects the 12,000 residents of the city of Marysville. Construction on Marysville, a separable element of the Federal authorized Yuba River Basin Project, is scheduled to begin in August. I understand you are personally working with the State of California and the local sponsors to close the funding shortfall to take advantage of the construction season, so several functional segments can be completed all at once.

What is the status of your efforts to secure the additional funds the District needs for this project?

Ms. Darcy. The Yuba River Basin, Marysville Ring Levee Phase 1 contract has been allocated sufficient ARRA funds. The contract award is scheduled for the summer of 2010, pending completion of the Engineering Design Report and execution of the amended Project Partnership Agreement.

Question. The Napa River Flood Protection Project has been the premiere flood protection/multiple purpose project of the Corps for the last 10 years and I appreciate the commitment made to the project by this administration, both in last year's budget and by providing almost \$100 million from the American Recovery and Reinvestment Act. This is the type of project the Corps should be proud of: a project that delivers 100-year flood protection, creates over 700 acres of tidal wetland, and will lead to the economic rebirth of a flood prone community.

What is your plan to keep this project on schedule and to move it aggressively toward completion?

General Van Antwerp. The Napa Salt Marsh project, rather than the Napa River flood risk reduction project, is the project that would provide 700 acres of tidal wetland. The Napa Salt Marsh project is funded in the fiscal year 2011 budget. Because the project is quite large and complex and construction activities are accelerating, the Corps recently has increased public outreach efforts. Weekly meetings are held with the local sponsor, County of Napa—Flood Control and Water Conservation District, and the city of Napa so that any issues related to effects of ongoing construction activities on local businesses and residences are quickly addressed. Short term schedules are posted on the current contractor's Web site. Meetings with area residences and businesses are held in advance of upcoming work to seek input and make adjustments to construction work efforts, where practical, to accommodate their suggestions.

With ongoing construction occurring in Napa, the Corps recognizes the need to continue design efforts and assess the Federal interest on the remaining project features. The Corps is striving to have the next design contract completed as soon as possible.

Question. Murrieta Creek Flood Protection and Environmental Restoration is a similar multi-benefit project in southern California, which will also deliver 100-year flood protection, restore a riparian habitat corridor, create 160 acres of wildlife habitat, and develop a 55-acre regional sports park. Since fiscal year 2004, Congress has provided \$14 million for construction of the Murrieta Creek project. However, we have seen little movement by the Corps in constructing the project and yet the Corps spends the funds on non-construction tasks, including project management.

Will you provide a full accounting of where the funding we have appropriated has gone? What are the administrative costs that are causing this funding to be spent without any physical results?

General Van Antwerp. From fiscal year 2003 to fiscal year 2010, appropriations for Murrieta Creek Project totals \$16,062,000. During this same period, a total amount of \$537,000 was lost to Savings and Slippage (S&S), and/or Rescission. A

total of \$3,455,000 was reprogrammed into the project, for a total work allowance of \$18,980,000 (see Table below).

SUMMARY OF PROJECT CONSTRUCTION FUNDING (2003 TO 2010)

Fiscal Year	Conference	Savings and Slippage (S&S)	Rescission	Initial Work Allowance (IWA)	Net Reprogramming	Final Work Allowance
2003	\$1,000,000	(\$179,000)	(\$6,000)	\$815,000	\$254,000	\$1,069,000
2004	1,000,000	(141,000)	(5,000)	854,000	2,869,000	3,723,000
2005	1,500,000	(157,000)	(11,000)	1,332,000	370,000	1,702,000
2006	3,750,000	.....	(38,000)	3,712,000	(38,000)	3,674,000
2007	1,760,000	.....	.....	1,760,000	.....	1,760,000
2008	1,813,000	.....	.....	1,813,000	.....	1,813,000
2009	3,349,000	.....	.....	3,349,000	.....	3,349,000
2010	1,890,000	.....	.....	1,890,000	.....	1,890,000

The physical construction for Phase 1 of the Murrieta Creek project was completed in fiscal year 2004 for total cost of approximately \$3 million. In 2005, this completed portion was damaged during the 2005 flood season. Emergency repairs and upgrades incurred a total cost of approximately \$3.6 million. In addition, annual O&M and environmental and water quality monitoring costs of this completed portion are paid for by project funds until this phase is turned over to the sponsor. Supervision and administration costs for the project are slightly over \$500,000 through fiscal year 2009.

On the non-construction costs, engineering and design costs for the project totals to approximately \$11 million. In addition to already completed engineering design and environmental documentation products, these costs include on-going work such as the following: (1) development of the Design Documentation Report which includes Sponsor's request to do technical analysis of other alternatives for the basin design; (2) preliminary design to include the ecological restoration and recreation features of the basin to its flood control feature are also being made; and (3) plans and specs for Phase 2 are near completion after several modifications to address several constraints and issues.

Design of Phase 1A is also being prepared to account for necessary design changes due to the Metropolitan Water District's requirements. The Environmental Assessment reports for Phase 1A and Phase 2 are being developed. In addition, the presence of nesting birds requires a section 7 consultation and therefore, more coordination with U.S. Fish and Wildlife Service. Our environmental and water quality monitoring produced reports to assure compliance with water quality and the project mitigation requirements.

The following summarizes the total project expenditures through fiscal year 2009:

Work Category	Federal Expenditures Through Fiscal Year 2009
Lands	\$41,268
Relocations .....	.....
Ecosystem Restoration .....	.....
Channels	3,348,830
Recreation .....	.....
Pre-construction Engineering and Design	1,492,000
Engineering and Design	11,261,621
Supervision and Administration	564,655
Total	16,708,374

Question. The local sponsor, the Riverside County Flood Control and Water Conservation District, is working to develop an innovative, more cost-effective alternative to the basin design which the community prefers to the Corps' plan which we believe will reduce costs and increase the benefit/cost ratio significantly.

Will you commit the Corps to reviewing the sponsor's cost reduction recommendations, including more cost-effective designs, in order to find a more economical project that the administration can budget?

General Van Antwerp. The Corps' Los Angeles District is working with the Riverside County Flood Control and Water Conservation District and the Cities of Murrieta and Temecula in an effort to move the project forward. In October 2009, there was a meeting to discuss available options to start construction of Phase 1A

and Phase 2. The Corps has committed to reviewing recommendations for a more cost-effective design and to continue to work to move the project forward.

Question. The Llagas Creek Flood Protection Project, will provide flood protection for 1,100 homes, 500 businesses and over 1,300 acres of agricultural land and preserve the creek's habitat, fish and wildlife. This project was initiated in 1954 and is only 60 percent and the adjoining communities continue to flood on a regular basis.

Despite regular appropriations, this project has not progressed well. What can the Army Corps do to prioritize this project for implementation in order to complete construction within the next several years?

General Van Antwerp. The project cost sharing is inconsistent with standard Corps cost-shares and due to low performance, the project does not compete well for funding against other Corps projects. However, the Corps will continue to evaluate this project for funding during budget development.

Question. The South San Francisco Bay Shoreline Project will provide flood protection to Silicon Valley from the existing, deficient non-engineered levees where tidal flooding and land subsidence occur along with the real risk of sea level rise. I have been advised that, even though the Corps commits to schedules and budgets, the feasibility study which was projected to cost approximately \$12 million and be completed in 5 years, now is estimated to cost \$25 million and will be completed in 10 years. This is unacceptable.

One solution to moving the project quickly is for the San Francisco District to work more collaboratively with the local sponsors, both to allow them to advance portions of the project to provide flood protection and to allow the sponsors to complete certain pieces, or even the remainder of the feasibility report, in concert with the Corps to reduce costs and expedite the schedule significantly.

Will you report back on positive efforts to facilitate these steps and recommend other innovative approaches to allow for securing expedited completion and approval of the Chief's Report for the Project and initiation of Corps' consideration?

General Van Antwerp. Although progress on the Shoreline Study has been slower than originally anticipated, the Corps will complete the without-project phase of the planning process in August 2010. This major milestone will identify existing and future tidal flood risks and associated economic damages to the South Bay communities should a project never be built. The Corps continues to work closely with the sponsors. One-half of the study costs (\$12.5 million) will be provided by the sponsors primarily as in-kind credit for contracts they are managing and staff time to participate in the study in an integral way through meetings and technical reviews.

The Corps is assisting the sponsors in applying the technical analysis to develop smaller, early implementation projects for flood risk management under our section 104 authority that they can move forward with on their own. This work in advance of a Corps authorized project will help bring flood protection to the communities most at risk sooner, and provide early restoration opportunities. If these projects become part of the authorized project the local sponsors can receive credit during construction for the work they perform. Although there is an authority under Navigation studies for a local sponsor to complete a feasibility report on their own, no such authority exists for Flood Risk Management studies.

The with-project phase of our planning process includes the development and evaluation of alternatives for both flood risk management and ecosystem restoration. Due to the complexity of the hydrodynamic modeling within the study area and multi-purpose planning challenges, we have scheduled a significant amount of time for this effort. We are assessing every possible way to streamline the evaluation and comparison of project alternatives with the goal of shortening the schedule.

Other options to consider are to continue with a single purpose plan of Flood Risk Management, or to reduce the geographic scope of this first study. The goal is to collaborate with both the Conservancy and Santa Clara Valley Water District in developing a plan to move forward in the most expeditious and beneficial manner for all parties.

Question. As stated in the Assistant Secretary's testimony, the Hamilton Airfield Wetlands Restoration-Bel Marin Keys Project is one of the Army Corps' premier wetlands restoration projects. However, I am concerned about reports I am hearing of how the project is being implemented and I believe your personal involvement is required.

First, I was recently made aware that after about a year of negotiating the Project Cooperation Agreement to include the authorization of the Bel Marin Keys V portion of the project into the base Hamilton Project at the authorized cost-sharing of 75 percent/25 percent in the Corps' own documents, that in the last month the Corps made the decision to change the cost-sharing to 65 percent/35 percent.

Second, while the project is authorized at a total of \$228 million, last year the San Francisco District estimated the total cost would be \$500 million. This year, the Corps came back with an estimate of \$300 million, but could not detail for the local sponsor how much dredged material that amount would move, nor could they quantify the minimum amount of dredge material needed to meet the habitat goals. This inability to determine the total cost of this project is concerning.

Can you report back to me on both of these issues?

General Van Antwerp. Because of changes to project authorities, the cost share did start out as 75/25 and is now 65/35. Specifically, section 2037 of WRDA 2007 amended the section 204 authorization the project was started under to increase the non-Federal cost share to 35 percent. WRDA 2007 modified the Hamilton Wetland Restoration Project (HWRP) to add the Bel Marin Keys Unit V (BMK) site to the existing project at a first cost of \$228.1 million. The authorized fully funded total project cost estimate for the combined project, escalated to today's dollars is \$267 million. This estimate assumes that the total project will be constructed with the expected amount of dredged material and environmental outputs of the project as specified in the Chief's Report.

SACRAMENTO

Question. The Sacramento Area Flood Control Agency and the California Department of Water Resources are collaborating on urgently needed levee improvements for the Natomas basin, in close cooperation with the Army Corps of Engineers. In fact, the Corps is preparing a Post-Authorization Change Report (PACR) to support the Federal component of the project. The Corps has committed to completing the PACR this summer, in time for Congress to act on as it considers authorization of water projects.

Can you confirm the Corps' schedule and commitment to this project? Please provide a detailed schedule for completion of the PACR.

General Van Antwerp. The Corps is committed to the Natomas Basin project, including executing in accordance with the following schedule:

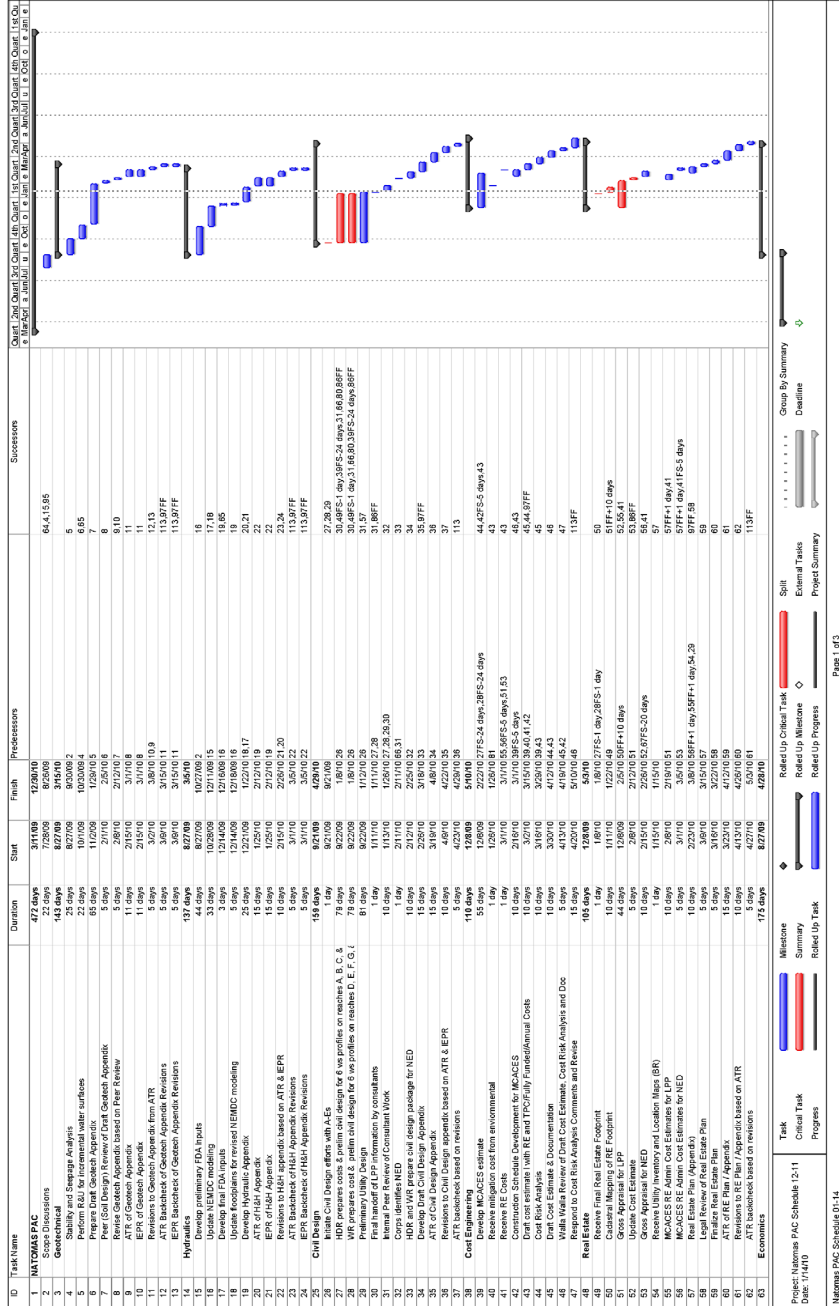
Schedule American River Common Features (ARCF) Post Authorization Change Report:

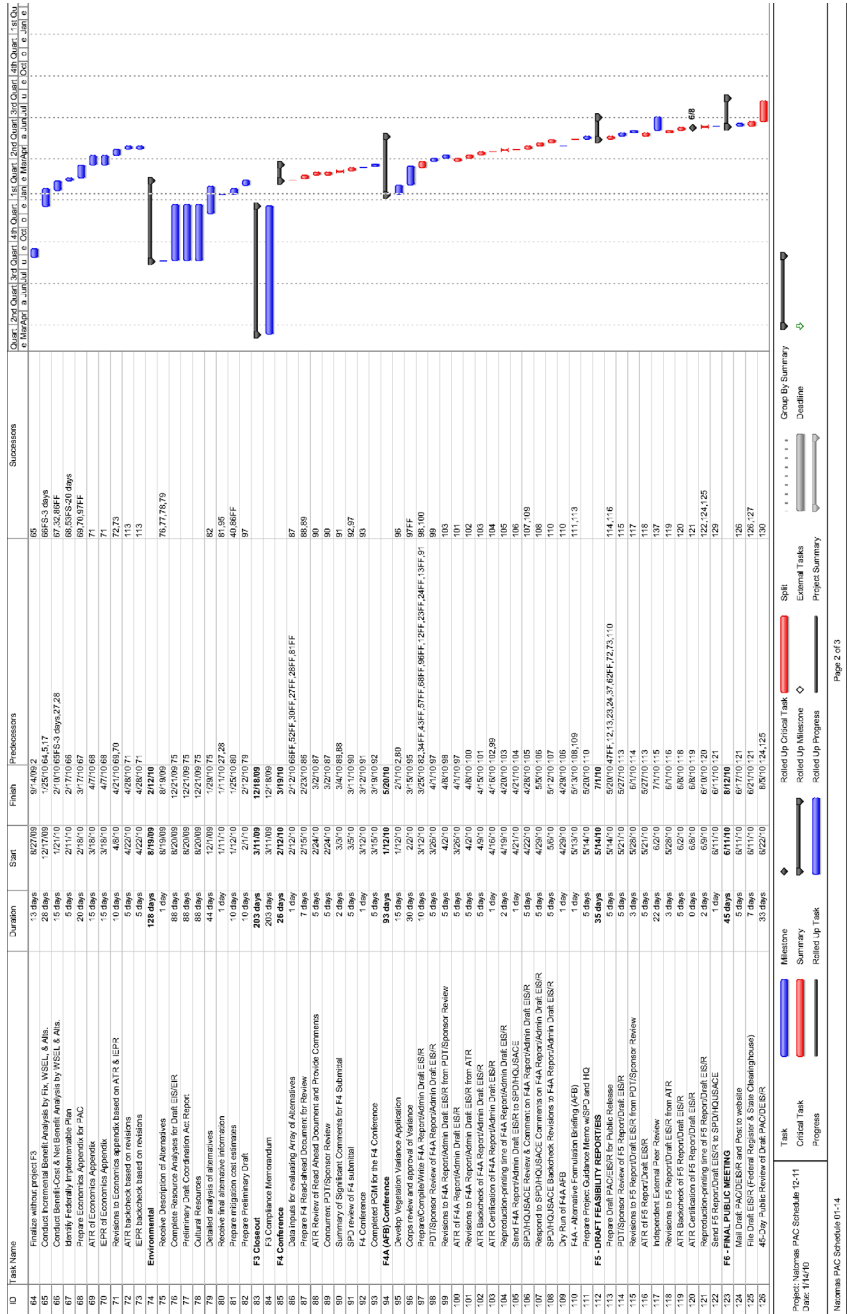
—Complete the draft Post-Authorization Change (PAC) by June 15, 2010.

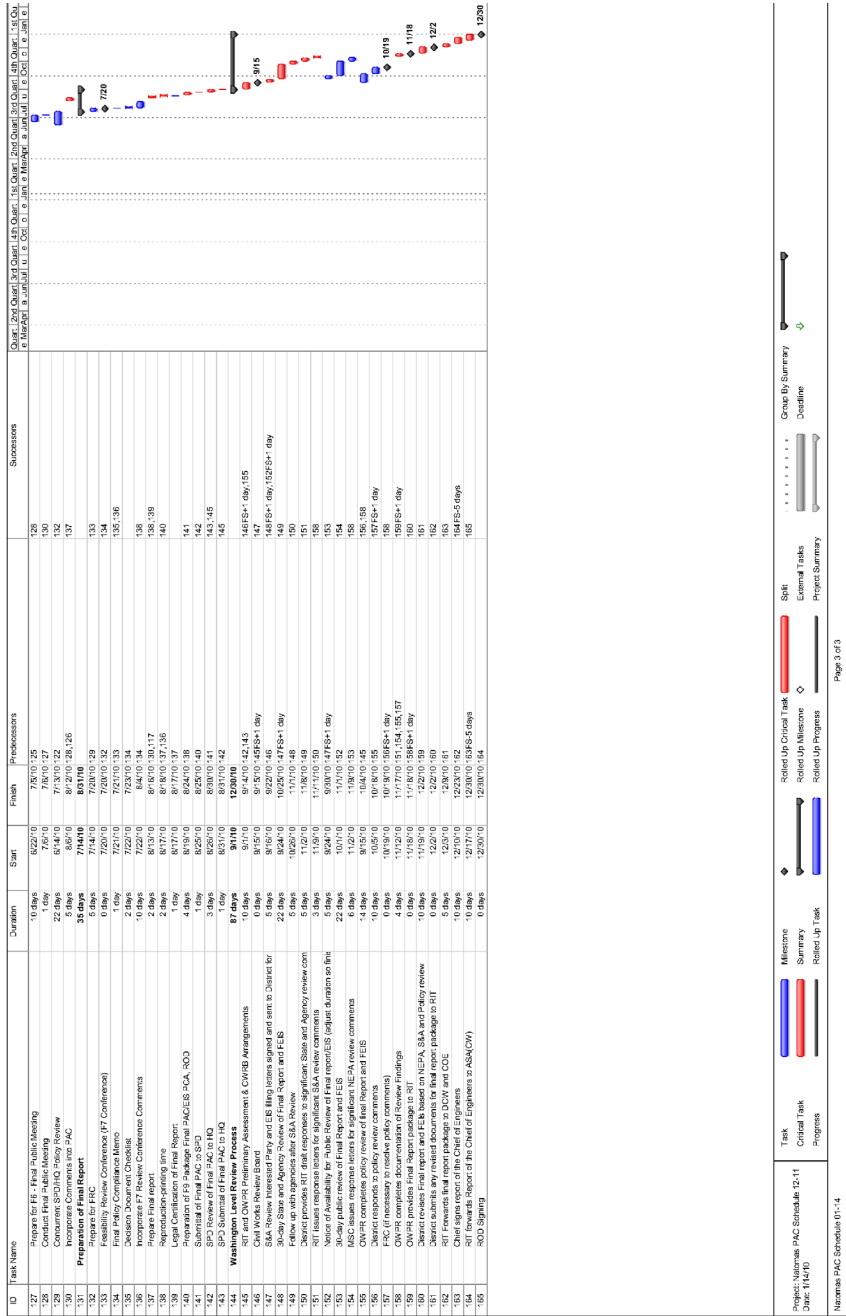
—Submit the final PAC package to HQ by August 31, 2010.

—Sign Chief's Report by December 31, 2010.

The Chief's Report for the ARCF GRR is scheduled for December 31, 2010.







Task

Critical Task

Progress

Milestone

Summary

Rollup Task

Rollup Critical Task

Rollup Milestone

Rollup Progress

Split

External Tasks

Project Summary

Group By Summary

Deadline

Question. Greater Sacramento remains one of the most at-risk urban areas in the Nation. I want to acknowledge my appreciation that the President's budget once again includes funding for Sacramento area flood control projects. However, several projects, especially the American River Watershed "Common Features" project and the Folsom Dam Modification project are at the point of heavy construction activity.

Do you anticipate that the administration will support the large funding requirements that are necessary to keep these projects on schedule?

Ms. Darcy. I cannot commit to future budget amounts, since those are future decisions. However, I can affirm that this project has consistently been considered a priority.

Question. The Sacramento Area Flood Control Agency and California Department of Water Resources are working together to lead what I believe is a perfect example of non-Federal initiative for initiating and financing major flood control works in the Natomas Basin. I believe this could serve as a model for more collaborative Federal/non-Federal partnerships nationwide, which can move needed projects forward more efficiently and leverage limited Federal resources.

Would you consider reviewing this model as a potential template for future partnerships?

Ms. Darcy. Yes, we will review this model. Non-Federal partners, the State of California and SAFCA have been outstanding partners and instrumental in assisting the Corps move forward quickly and effectively on this project.

QUESTIONS SUBMITTED BY SENATOR ROBERT F. BENNETT

LOUISIANA COASTAL AREA (LCA)

Question. The budget request includes a new start in the Construction account, one for the Louisiana Coastal Area ecosystem restoration project. Can construction on the Louisiana Coastal Area project be initiated in fiscal year 2011, given the status of the planning study?

General Van Antwerp. Provided that LCA project reports favorably complete the administration review process, yes, construction can be initiated in fiscal year 2011. The LCA study farthest along is for the Beneficial Use of Dredged Material (BUDMAT) Program. The programmatic feasibility study for BUDMAT was submitted by the Corps to my office in March 2010 for review. The study outlines a framework for using material generated through maintenance dredging of authorized channels for restoration efforts.

The BUDMAT study provides criteria for identifying individual projects that could proceed after completing the relevant planning and environmental studies. Pre-construction engineering and design of the first BUDMAT projects will start in late fiscal year 2010, with construction of those individual projects expected to be initiated in fiscal year 2011.

Question. Can you assure us today that the funding would result in on the ground projects if it was included in an appropriation bill?

General Van Antwerp. If the LCA BUDMAT Program report receives a favorable administration review, the Corps is prepared to work with the State of Louisiana to execute a Project Partnership Agreements in fiscal year 2010 in preparation to begin construction in fiscal year 2011. The Corps will capitalize on the scheduled maintenance dredging at authorized channels where the material can be used for restoration projects that meet the LCA Program objectives.

Question. The Louisiana coast continues to be negatively impacted from subsidence and sea level rise. Beyond the near term benefit of wetland restoration, how will the work proposed under the LCA account for these factors. Are we essentially wasting our money for very short term gains?

General Van Antwerp. Sea level rise and subsidence were factors in developing the plans for the LCA projects. While the projects cannot stop sea level rise and subsidence, the projects can slow down the disappearance of the landforms by eliminating some of the causes of coastal erosion. The addition of sediments through direct placement or river diversions will increase the ability of the restored area to continue to function and provide habitat with minimum continuing intervention over time. The soft, fluid Louisiana coastal formations erode in nature, and the services produced by a given project will change as the land erodes. The landforms continue to function as coastal habitats and ecosystem regulators even though they do not maintain their original construction footprint.

Question. Will the LCA project actually restore the Louisiana coast? It appears to me that the best you will be able to accomplish with this program is perhaps to reduce the current loss of wetlands. Even that goal is unclear if it can be met. How

do you justify spending funds to initiate construction on something that has such speculative benefit?

General Van Antwerp. The projects identified in the LCA 2004 report are restoration elements that could be implemented in the near term to address critical needs of the Louisiana coast. As indicated in the LCA 2004 report, the design and operation of these features would reduce the current rate of loss, maintain the opportunity for, and support the development of large-scale, long range comprehensive coastal restoration.

The near term projects are intended to work in concert with each other to improve the sustainability of the Louisiana coast. Maintaining natural landscape features and hydrologic processes is critical to sustainable ecosystem structures and functions. The Louisiana coastline represents 90 percent of the wetlands in the contiguous United States and is currently disappearing at an alarming rate. This unique and scarce habitat has high fish and wildlife values and serves to protect nationally important oil and gas infrastructure, as well as coastal communities and cultures.

Question. Why is the LCA project more of a priority for the administration than other restoration projects?

Ms. Darcy. Execution of the LCA projects would make significant progress toward achieving and sustaining a coastal ecosystem that can support and protect the environment, economy, and culture of southern Louisiana and thus, contribute to the economy and well-being of the Nation.

With no action the capacity of the coastal wetlands to buffer storm surges from tropical storm events will diminish, which will increase the risk of significant damage to oil, gas, transportation, water supply and other private and public infrastructure and agriculture lands and urban areas. A continued decline of the natural ecosystem will result in a decrease in various functions and values associated with wetlands, including corresponding diminished biological productivity and increased risk to critical habitat of Federal-listed threatened and endangered species.

Question. Why is funding included in both the GI and the construction accounts?

Ms. Darcy. For fiscal year 2011, funds from the Investigations account would be used to continue the feasibility level analysis for components of the LCA Program and funds from the Construction account will be used to undertake construction for those components where construction can be initiated.

Question. WRDA 07 conditionally authorized six projects subject to a favorable report of the Chief of Engineers not later than December 2010. Are you on schedule to meet this report requirement?

Ms. Darcy. The Corps and the State of Louisiana are currently on schedule to have a signed favorable report of the Chief of Engineers Report by December 2010.

GENERAL BUDGET QUESTIONS

Question. Understanding that development of the budget is an iterative process between the agency and the administration, is it safe to assume that the Corps initial budget request to OMB differed from what we have before us today?

Ms. Darcy. The Corps' recommendations are the foundation of the Army's budget recommendations to the President. The advice and counsel leading up to the Army's recommendations are part of the internal deliberative process.

Question. Without going into specific projects are funding levels, can you tell us a little bit about how it might have differed?

Ms. Darcy. The President must make government-wide budget decisions in consideration of his the overall policy, spending and deficit goals. In order to provide the President the full benefit of advice from the agencies and departments, budget deliberations are considered to be pre-decisional, internal information.

Question. Was the initial amount that the Corps recommended higher than what is before us today?

Ms. Darcy. The advice and counsel leading up to the recommendations that form the basis of the President's budget are part of the internal deliberative process and are considered confidential advice to the President.

Question. Was a specific area or business line of the budget request more impacted by the budgetary criteria?

Ms. Darcy. The budget is performance based, and benefit cost ratio (BCR) is a primary allocation metric. Some business lines are more likely to carry higher benefit-to-cost ratios, although consideration also is given to reducing risks to human life and providing important environmental restoration benefits.

YAZOO BACKWATER

Question. Why does the fiscal year 2011 budget propose to cancel \$58 million previously appropriated for the Yazoo Backwater project?

Ms. Darcy. As a result of Environmental Protection Agency's (EPA) veto of the Yazoo Backwater Pumps Project under section 404(c) of the National Environmental Policy Act, the project cannot proceed and, therefore, the funds appropriated specifically for implementation of the Yazoo Backwater pumps project are not needed.

Question. Will this cancellation affect completion of the center associated with the Theodore Roosevelt National Wildlife Refuge?

Ms. Darcy. The requirement of the fiscal year 2009 Omnibus Appropriation Act that some of the funding appropriated for the Yazoo Pumps project in that act be used for the Interpretive Center has been satisfied.

Question. What about the ongoing litigation? It is inappropriate to propose cancellation of these funds before the final decision is made.

Ms. Darcy. The Army is not a party to this litigation. The court has allowed six environmental groups to intervene as defendants in the lawsuit. The court will decide the lawsuit on motions for summary judgment based on the administrative record.

Question. There is an inconsistency between the administration's budget appendix and the Corps' press release. The budget appendix assumes \$58 million is cancelled. The press book shows only \$52 million. Are either of these numbers correct?

Ms. Darcy. The \$58 million reflected in the administration's budget appendix is the amount of funds appropriated in fiscal year 2004 thru fiscal year 2009 for implementation of the Yazoo Backwater project. Due to a misunderstanding about the effect of language in the fiscal year 2009 Omnibus Appropriation Act, the press book reduced the amount by \$6,000,000.

LEEVE CERTIFICATION

Question. There is considerable controversy over the minimally acceptable rating for levee certification. Please explain the Corps inspection process and how the FEMA rating system has affected the Inspection of Completed Works program.

General Van Antwerp. The Corps conducts Routine Inspections on an annual basis of levees including those the Corps operates and maintains; those Federal authorized and operated/maintained by a local sponsor; and those locally constructed and locally maintained, but have applied and been accepted into the Corps' Public Law 84-99 program. The purpose of these Routine Inspections (also referred to as Annual Inspections or Continuing Eligibility Inspections) is to ensure the levee system is being properly operated and maintained in accordance with project cooperation agreements, if applicable, as well as to determine eligibility for Federal rehabilitation funds under Public Law 84-99.

The Corps uses an inspection checklist and provides a levee "system" rating. A levee system is defined as comprising one or more levee or floodwall segments which collectively provide flood risk reduction to a defined area. The levee system is inclusive of all features that are interconnected and necessary to ensure flood risk reduction of the associated separable floodplain. A levee system can have one or more local sponsors or maintainers, but is rated as one entity. The Corps provides a rating for each individual item/component on the checklist and then gives the levee an overall system rating.

The Corps' inspection ratings include the following:

Acceptable Item.—The inspected item is in satisfactory condition, with no deficiencies, and will function as intended during the next flood event.

Minimally Acceptable Item.—The inspected item has one or more minor deficiencies that need to be corrected. The minor deficiency or deficiencies will not seriously impair the functioning of the item as intended during the next flood event.

Unacceptable Item.—The inspected item has one or more serious deficiencies that need to be corrected. The serious deficiency or deficiencies will seriously impair the functioning of the item as intended during the next flood event.

Acceptable System.—All items or components are rated as Acceptable.

Minimally Acceptable System.—One or more items are rated as Minimally Acceptable or one or more items are rated as Unacceptable and an engineering determination concludes that the Unacceptable items would not prevent the system from performing as intended during the next flood event.

Unacceptable System.—One or more items are rated as Unacceptable and would prevent the system from performing as intended, or a serious deficiency noted in past inspections (which had previously resulted in a minimally acceptable system rating) has not been corrected within the established timeframe, not to exceed 2 years.

If a levee system is rated Unacceptable, that system is placed in Inactive status in Public Law 84-99 until corrections are made. An Inactive levee is no longer eligi-

ble for Federal rehabilitation funding if damaged from a flood event. The Corps will still participate in flood fighting activities.

Inspection results are provided to the local sponsor and to FEMA. If the Corps is on record as having previously certified the levee for FEMA purposes, then the Corps will evaluate how the inspection results may or may not impact the certification. If the Corps did not certify the levee, then FEMA will decide if the certification needs to be revisited based on the inspection results.

An "Acceptable" inspection rating by the Corps does not equate to a levee certification.

An "Unacceptable" inspection rating by the Corps does not automatically "de-certify" a levee.

A Periodic Inspection, conducted every 5 years, is the next level of inspection in the Corps Levee Safety Program and is conducted by a multidisciplinary team, led by a professional engineer. It includes a more detailed, comprehensive and consistent evaluation of the condition of the levee system. Activities under the Periodic Inspection include evaluating Routine Inspection items; verifying proper operation and maintenance; evaluating operational adequacy, structural stability and, safety of the system; and comparing current design and construction criteria with those in place when the levee was built. The final Periodic Inspection rating is based upon the Routine Inspection checklist.

FEMA does not have any type of rating system for levees or levee certification.

Question. We understand that levees that were designed for underseepage may now receive a minimally acceptable rating under the new rating system. How will this impact the levee being certified or accredited by FEMA?

General Van Antwerp. Inspection ratings by the Corps do not have a direct correlation to levee certification for FEMA purposes. Certification for FEMA purposes only evaluates a levee at the 1 percent flood event (or 100 year or base flood) and any type of condition, such as underseepage, will need to be taken into account for this evaluation. For example, deficiencies could exist that may not impact the levee's ability to perform at the 1 percent flood event.

Question. What happens if a levee loses certification and how will this impact taxes paid to levee districts for funding levee maintenance?

General Van Antwerp. When levees do not meet certification criteria, the areas behind them are mapped as if the levee is not there. Depending on the hydraulics, these areas could be shown on FEMA's Flood Insurance Rate Maps as high-risk Special Flood Hazard Areas (SFHAs). Flood insurance and other flood plain management requirements are mandatory in SFHAs.

The Corps cannot comment on how local taxes are implemented or impacted.

Question. Who is responsible for the cost to bring a levee that was previously certified in the past up to current standards for levee certification?

General Van Antwerp. For Inspection of Completed Works levees (Federal authorized/locally maintained), the local sponsor has the responsibility to ensure the levee will perform to the authorized design level, which may be below, at, or above the 1 percent (or 100 year or base) flood event for levee certification.

For levees the Corps operates and maintains, the Corps has the responsibility to ensure the levee will perform to the authorized design level. For all other levees, the entity seeking certification has responsibility to ensure the levee meets certification criteria.

Question. How does the Corps Levee Safety program support levee certification?

General Van Antwerp. The Corps will provide any levee information available to the local sponsor in support of certification efforts.

Question. When is levee certification a Corps of Engineers responsibility?

General Van Antwerp. It is the local levee sponsor's or community's responsibility to provide levee certification documentation to FEMA. Local communities must legally adopt and administer FEMA's National Flood Insurance Program (NFIP) requirements and have responsibility for operation and maintenance of their levees.

If the Corps operates and maintains the levee, the local community that must adopt the FEMA Flood Insurance Rate Map as part of their requirement for participation in the National Flood Insurance Program may request the Corps to perform the certification of that levee. If funding is available, the Corps may perform the certification. The purpose of levee certification is to determine how FEMA will map the floodplain behind the levee for flood insurance purposes as part of the NFIP. The 1 percent annual chance exceedance flood, also called the 100-year or base flood, is an insurance standard. It is not a safety standard nor does it eliminate risk.

Question. For levee projects that once had 100-year certification and now find that they are a couple of feet too short or have other structural issues, what is the likelihood that current Corps policy would allow the Corps to participate in finding solutions that would be economically justified?

General Van Antwerp. The Corps has various authorities and programs in the area of Flood Risk Management to collaborate in finding potential solutions, such as section 205—Flood Damage Reduction; section 216—Review of Completed Projects; Floodplain Management Services, Planning Assistance to States, inter-agency teams, or initiation of reconnaissance study.

QUESTIONS SUBMITTED BY SENATOR MITCH MCCONNELL

Question. The U.S. Army Corps recommends a mere \$2.868 million for the Kentucky Lock and Dam project in the fiscal year 2011 budget, which will cause the project to slip even further behind. How many years delayed is the project, and what additional funds are now needed complete it? What is the Army Corps' long-term plan for Kentucky Lock?

General Van Antwerp. The Kentucky Lock Project received \$65.6 million in ARRA funds to date that has allowed for award of the Upstream Lock Monoliths construction contract. This contract encompasses all the critical activities of the project through at least the second quarter of fiscal year 2012. For this reason, the project did not require significant funding in fiscal year 2011 from the Inland Waterways Trust Fund (IWTF).

The \$2.868 million in the fiscal year 2011 budget is sufficient to complete the ongoing highway/railroad relocations superstructure construction contract. The project's completion date has been extended for 3 years due to the solvency issues of the IWTF. If enacted, the draft plan to restore solvency to the IWTF would provide sufficient funding to complete the project before 2020.

Question. The Army Corps has indicated that \$143.2 million could be used to further construction at Olmsted Locks and Dam; however the President's budget for fiscal year 2011 includes \$136 million for the project. How many years behind is the project from its scheduled completion date? At what point does the budget for Olmsted take a severe budget cut, like the Kentucky Lock Project, because of the inability of the Inland Waterways Trust Fund to fund ongoing projects?

General Van Antwerp. The Olmsted project completion date of 2012 has slipped, due to a number of factors including river conditions, design changes, materials and supply escalation, and differing site conditions. If optimal funding were to be available, the project could be completed in 2018. For fiscal year 2011 thru fiscal year 2015 the estimated efficient funding stream for the project is approximately \$140–\$145 annually.

QUESTIONS SUBMITTED BY SENATOR RICHARD C. SHELBY

Question. In the wake of Judge Magnuson's July 2009 ruling concerning the Corps' illegal operations in the Apalachicola-Chattahoochee-Flint (ACF) River Basin, the Corps was forced to withdraw its scoping report for the ACF Water Manual Update and issue a revised scoping report. The Corps is also preparing a new water control manual for the Alabama-Coosa-Tallapoosa (ACT) River Basin, but Judge Bowdre has not yet ruled on the legality of the Corps operations in the ACT Basin.

In light of the experience with having to withdraw the ACF scoping report, has the Corps considered suspending the ACT manual update process until Judge Bowdre issues her ruling? If not, how can the Corps justify expending scarce resources to continue with the ACT manual update process when Judge Bowdre's ruling may require that the process start over?

General Van Antwerp. The Corps is updating the ACT water control manuals and associated NEPA documentation in accordance with direction provided by then Secretary of the Army Pete Geren in October 2007, and Army regulations. Updating the water control manuals and NEPA documentation is a complex and time-consuming deliberative process that includes extensive model development and data analysis, as well as coordination with Federal, State, regional and local agencies.

The Corps is confident that its operations in the ACT basin, and its process in updating the ACT manuals, are fully in compliance with applicable law. While the possibility exists that some adjustments to the update may be appropriate in response to a future ruling by Judge Bowdre in the ACT litigation in the U.S. District Court for the Northern District of Alabama, the majority of the work being performed now would still be needed and of value in implementing any water control manual update.

Although the Corps did decide to reopen public scoping of the ACF water control manual updates and EIS in November 2009, to account for Judge Magnuson's July 17, 2009 ruling in the consolidated cases styled *In re Tri-State Water Rights Litigation*, No. 3:07-md-01 (M.D. Fla.), the Corps is continuing the process of updating the

ACF water control manuals, in accordance with Secretary Geren's earlier direction, and released an updated scoping report in March 2010. The July 2009 ruling is currently on appeal.

Question. Explain how the Corps has factored the legal principles underlying Judge Magnuson's ruling concerning the ACF into Corps' ACT manual update process.

General Van Antwerp. Judge Magnuson's ruling addressed the authorities for operating Buford Dam/Lake Sidney Lanier and did not address the ACT manual update process.

Question. What steps has the Corps taken to address the fact that Cobb County-Marietta Water Authority withdraws more water than they are entitled to withdraw from Lake Allatoona under their contract with the Corps?

General Van Antwerp. The Corps notified CCMWA in a letter dated November 2, 2007 that its water supply withdrawals from Lake Allatoona were exceeding the amount of water available in storage allocated to CCMWA pursuant to its storage contract. There are on-going discussions with CCMWA regarding this issue.

Question. What is the status of the Hickory Log Creek Reservoir in Georgia and when is it anticipated that the pumping facility on the Etowah River will begin operations?

General Van Antwerp. Construction of the reservoir is essentially complete and the reservoir is approximately 80 percent full due to plentiful rains in the fall of 2009 and spring 2010. The Etowah River pump system is completed, but some land acquisition problems have arisen. Pursuant to DOA permit conditions CCMWA cannot pump from the Etowah River until it completes its compensatory mitigation. The estimated time until the pumping from the Etowah begins is now December 2010. However, to date, the Corps has not received a formal request from CCMWA to start pumping from the Etowah River.

Question. Has the Corps imposed any restrictions on the timing and duration of pumping from the Etowah River into the Hickory Log Creek Reservoir to minimize the impact upon inflows into Lake Allatoona?

General Van Antwerp. The State of Georgia has established conditions for when pumping from the Etowah River into Hickory Log Creek can occur. These conditions limit withdrawals from the Etowah River when the river is below 25 percent of Annual Daily Discharge (ADD).

QUESTIONS SUBMITTED BY SENATOR GEORGE V. VOINOVICH

Question. In the Fiscal Year 2010 Energy and Water Appropriations Act, Congress provided the Corps with emergency authority to implement measures for Asian Carp that were included in an interim or final Feasibility Study, which was authorized in WRDA 2007. Has this authority been helpful and does the Corps support the continuation of this authority?

Ms. Darcy. The Army has found the authority useful and supports its extension. The authority has provided the Corps with the opportunity to complete studies for the Secretary's approval that can be implemented quickly to address the high level of concern in the Great Lakes community over the migration of Asian Carp. One example of using the authority is the construction of fencing and barricades to prevent bypass of the Corps' electric barrier system in the case of flood events.

Question. For many years, I have raised concerns about the significant backlog of Corps work throughout the country as well as in the Great Lakes. This backlog problem is, in part, the result of the Corps practice of treating the Great Lakes as a coastal system and comparing individual ports using tons as a budget metric. In contrast, the Corps budgets our Nation's river systems on a ton-mile metric. The current budget process and metrics put the Great Lakes navigational system at a disadvantage compared to other domestic navigational systems. How do you plan to address the backlog of Corps' work across the country, and in particular the Great Lakes?

General Van Antwerp. The Corps budgets for key maintenance needs across the entire spectrum of Civil Works projects by prioritizing projects based on objective performance criteria. In navigation, the Corps focuses on funding harbors and waterways that have high volumes of commerce. However, funds are budgeted based on other factors as well, such as those ports and channels that serve as critical harbors of refuge, subsistence harbors, or facilitate U.S. Coast Guard search and rescue operations.

The Great Lakes projects are individually authorized and are considered coastal projects. While there is some interdependence of the Great Lakes ports and harbors on each other, the Great Lakes system is non-linear and many Great Lakes ports

and harbors can operate independent of other harbors. Conversely, the inland navigation facilities on the Mississippi River, Ohio River, and other inland waterways are often linear and interdependent on each other. For example, if users are traversing more than one lock and dam a single closure in the system will stop that traffic. For other than short-haul movements, or movements south of St. Louis, the commercial towing vessels must transit through many locks and dams to move from the point of origin to the destination point and all the inland navigation infrastructure along the way must be functional for the trip to occur.

Question. Despite the significant backlog of Corps work, the Harbor Maintenance Trust Fund has approximately a \$4 billion surplus that is growing each year. As you know, the money collected for the Harbor Maintenance Trust Fund is intended for a specific purpose—maintaining harbors and channels. Do you believe that additional money should be provided to the Corps from the Harbor Maintenance Trust Fund?

Ms. Darcy. The source of funds is just one of many factors considered in the budget development process. The overall Civil Works Operation and Maintenance (O&M) program is prioritized for all missions, including navigation, flood risk management, hydropower, etc. Funding is budgeted for the diverse Civil Works missions based on various metrics and priorities, and is limited by our overall budget authority.

QUESTIONS SUBMITTED TO HON. MICHAEL L. CONNOR

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

DROUGHT

Question. In prior years I have talked about the drought situation in the West particularly as it relates to North Dakota. As we know, that is not the situation this year. However, can you talk about the drought situation in the West and what we should expect based on current models?

Answer. Reclamation utilizes the National Oceanic and Atmospheric Administration's Climate Prediction Center to monitor drought conditions. Currently, the Center shows that the States of Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington, and Wyoming are experiencing some level of drought ranging in intensity from abnormally dry to extreme. While the El Niño winter has improved the drought conditions in the Pacific Northwest and Northern Rockies, it has expanded the drought in the Hawaiian Islands.

RURAL WATER

Question. There are a number of projects in the fiscal year 2010 Energy and Water Act that were not included or included at low levels in the President's fiscal year 2011 budget request. Can you provide us the capability amounts needed for those projects?

Answer. The first priority for funding rural water projects is the required O&M component, which is \$15.5 million (Reclamation-wide) for fiscal year 2011. For the construction component, Reclamation allocated funding based on objective criteria that gave priority to projects that serve on-reservation needs and are nearest to completion.

- Fiscal year 2011 is the second time Jicarilla-Apache Rural Water System (RWS) in New Mexico is in the budget request. The request is for \$0.5 million.
- Perkins County Rural Water System (RWS) in South Dakota is in the budget request. The request is for \$1 million.
- Rocky Boy's/North Central Montana RWS in Montana is in the budget request. The request is for \$1 million. At full capability, \$20 million would be used to install additional core system pipeline from the Tiber Dam to the Rocky Boy's Reservation.
- Fort Peck Reservation/Dry Prairie RWS in Montana is in the budget request. The request is for \$2 million. At full capability, \$15 million would be used to complete pipeline from the water treatment plant to Wolf Point and Poplar.
- Lewis and Clark RWS in South Dakota, Iowa, and Minnesota, is in the budget request. The request is for \$200 million. At full capability, \$35 million would complete construction on Phase II of the water treatment plant.

Question. How did you arrive at the funding decisions for rural water projects? Most of them seem to be funded at minimal levels.

Answer. The first priority for funding rural water projects is the required O&M component, which is \$15.5 million (Reclamation-wide) for fiscal year 2011. For the construction component, Reclamation allocated funding based on objective criteria

that gave priority to projects that serve on reservation needs and are nearest to completion.

Question. Are these projects not part of Reclamation's mission of bringing water to the West?

Answer. Yes. The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

The fiscal year 2011 President's budget balances several priorities, including funding for constructing authorized rural water projects. Given the need to work within the framework of today's budget realities, as well as the need to be attentive to priorities associated with existing water and power infrastructure throughout the West, Reclamation is unable to fund all of the ongoing rural water projects at their full capability levels.

Question. How are we ever going to make progress on completing these projects, at these low budget levels? Inflation is going to increase the project cost faster than the funding we are investing.

Answer. Reclamation is making progress in funding rural water projects throughout North and South Dakota and Montana. The Mid-Dakota Rural Water System was completed in fiscal year 2006; numerous features within the Garrison Diversion Unit in North Dakota have been completed; and the Mni Wiconi Rural Water System is scheduled to complete in 2013. Reclamation also allocated \$200 million in American Reinvestment and Recovery Act funds (ARRA) to further construction on these projects.

TITLE XVI RECYCLED WATER

Question. Title XVI programs are traditionally not well supported by the administration. I am pleased to see an increase for these projects in your budget. However, can you explain how the unallocated \$20 million will be allocated to projects?

Answer. Fiscal year 2011 is a transition year for the title XVI Water Reclamation and Reuse program (title XVI) because a number of the individual projects authorized under title XVI of Public Law 102-575, as amended, that have been included in the President's budget in the past are completed or are approaching Federal cost-share ceilings. Reclamation plans to post a funding opportunity announcement to invite project sponsors to submit requests for fiscal year 2011 funding. The procedure will be similar to the steps used to allocate over \$135 million in ARRA funding to title XVI projects in 2009, when proposals were reviewed and ranked to identify individual projects for funding. The funding opportunity will be open to authorized projects that have received Federal funding in the past and those that have not received Federal funding to date. Reclamation proposes to consider construction and pre-construction activities that can be commenced in fiscal year 2011 and completed within 24 months (i.e., not previously completed construction). Generally, criteria will focus on reducing existing diversions or addressing specific water supply issues in a cost-effective manner, addressing environmental and water quality concerns, and meeting other program goals.

Question. What modifications do you believe could be made to the title XVI program that would make it more acceptable to the administration?

Answer. This administration recognizes the key role water reuse plays in addressing western water issues, as indicated by this increased request. Title XVI is an important part of the WaterSMART program, which seeks to achieve a sustainable water strategy to meet the Nation's water needs. Title XVI projects can stretch water supplies using both time-tested methodologies and piloting new concepts. Reclamation looks forward to working with the subcommittee to make the title XVI program as effective as possible as part of this coordinated approach to addressing 21st century water challenges.

Question. How much of a backlog currently exists in the currently authorized title XVI program?

Answer. There are currently 53 authorized title XVI projects, including new projects authorized as a result of the Omnibus Public Land Management Act of 2009 (Public Law 111-11). Together, those authorized projects have a remaining Federal cost share balance in excess of \$600 million—after more than \$135 million allocated under ARRA has been applied.

AGING INFRASTRUCTURE

Question. The recently passed Lands bill gave Reclamation the authority to address rehabilitation of its aging infrastructure. Prior to the passage of this legislation this rehab work would have been a non-Federal responsibility. Recognizing that

this is a relatively new authority, has Reclamation established guidance for how this program is to be implemented?

Answer. Reclamation is currently developing guidance regarding the implementation of this program as directed by Omnibus Public Land Management Act (Public Law 111-11, subtitle G—Aging Infrastructure). Similar programs designed to assist Reclamation project beneficiaries in financing the reimbursable costs of extraordinary maintenance and rehabilitation work have been implemented by Reclamation in the past, and we are drawing on that experience in developing implementation guidance.

Question. Has Reclamation evaluated the condition of this infrastructure so that this work could be prioritized in a meaningful manner?

Answer. Reclamation periodically evaluates the condition of its facilities through existing facility review programs. The recommendations resulting from the reviews are the basis for prioritization of funding for identified needs.

Question. No funding was provided in your budget for this authority. Does this mean that this will be a low budget priority for the administration?

Answer. No. Reclamation believes that the Omnibus Public Land Management Act (Public Law 111-11, subtitle G—Aging Infrastructure) provides the authority to undertake such a program, and plans to consider the appropriateness of funding requests to support these efforts on a project by project basis given current budget constraint. As stated in above, Reclamation periodically evaluates the condition of its facilities through existing review programs and the recommendations resulting from the reviews are the basis for prioritization of funding for identified needs.

Question. The language in the Lands bill makes this work reimbursable over a period not to exceed 50 years. Will this be affordable to the non-Federal sponsors that most need this assistance?

Answer. Current law requires the non-Federal sponsors to pay for this work in advance. Allowing repayment over a term of up to 50 years will greatly ease the burden these entities have faced in the past in repaying the reimbursable costs of this work. In addition, Reclamation would pay for the share of the costs that would be allocated to non-reimbursable project purposes. However, given that some of the major repair work needed will be very costly, and that interest will be assessed on the reimbursable obligations, some project sponsors will still face challenges in repaying these costs.

Question. With much of Reclamation's infrastructure more than 50 years old, this problem is only going to increase. Has Reclamation developed contingencies to address failures of this infrastructure?

Answer. Assuming that the reference to failures is in the context of not being able to continue water deliveries, this would pose a public policy question regarding the costs and benefits associated with major Federal investment in recapitalizing this infrastructure. Reclamation believes that the Omnibus Public Land Management Act (Public Law 111-11, subtitle G—Aging Infrastructure) provides the authority to undertake such a program, and plans to consider the appropriateness of funding requests to support these efforts on a project by project basis given current budget constraints.

Question. Now that the CALFED Program has been extended, will the administration be providing a Cross Cut Budget document showing expenditures and accomplishments, either this year or in next year's request?

Answer. Reclamation and the other Federal CALFED agencies prepared a Federal Cross Cut Budget for fiscal year 2011 in accordance with the extension of Public Law 108-361 through fiscal year 2014. That is currently posted with the President's fiscal year 2011 budget on the OMB Web site under Analytical Perspectives. Under the newly established Delta Stewardship Council which replaced the California Bay-Delta Authority and assumed the CALFED Program, the Federal CALFED agencies anticipate continuing to work with the State to meet the goals identified in the CALFED Bay-Delta Programmatic Record of Decision and our Federal responsibilities as defined in Public Law 108-361. OMB will continue to work with the Federal CALFED agencies through fiscal year 2014 to ensure a Federal Cross Cut Budget is prepared and submitted unless replaced by some other process or defining legislation.

Question. On December 22, 2009, the administration released an "Interim Federal Action Plan for the California Bay-Delta". How will the administration report expenditures by agencies on items within this plan and accomplishments of the plan?

Answer. The administration will work closely with our State and other Federal partners in developing a coordinated report on obligations and accomplishments of the Federal Action Plan for the California Bay-Delta. As many of the activities under the Action Plan will also be associated with the activities of the new Delta Stewardship Council, we will work together to provide a concise and meaningful re-

port of the obligations and accomplishments under the Federal Action Plan that is fully coordinated with the annual reporting requirements of the extended CALFED Program. This reporting includes the Annual Cross Cut Budget submittal unless replaced by some other process or defining legislation.

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

CALFED

Question. Now that the CalFed Bay-Delta Authorization is extended through 2014, will the administration be providing a Cross Cut Budget document showing expenditures and accomplishments, either this year or in the fiscal year 2012 budget request?

Answer. Reclamation and the other Federal CALFED agencies prepared a Federal Cross Cut Budget for fiscal year 2011 in accordance with the extension of Public Law 108-361 through fiscal year 2014. That is currently posted with the President's fiscal year 2011 budget on the OMB Web site under Analytical Perspectives. Under the newly established Delta Stewardship Council which replaced the California Bay-Delta Authority and assumed the CALFED Program, the Federal CALFED agencies anticipate continuing to work with the State to meet the goals identified in the CALFED Bay-Delta Programmatic Record of Decision and our Federal responsibilities as defined in Public Law 108-361. OMB will continue to work with the Federal CALFED agencies through fiscal year 2014 to ensure a Federal Cross Cut Budget is prepared and submitted unless replaced by some other process or defining legislation.

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RED BLUFF DIVERSION DAM

Question. The President's budget includes \$39.9 million to continue construction of the new fish screen and pumping plant at the Red Bluff Diversion Dam on the Sacramento River. The administration also allocated \$109.9 million in stimulus dollars toward this project. However, in order to keep this project on schedule to meet the requirements in the June 4, 2009 Biological Opinion for the Operating Criteria and Plan for the Central Valley Project, this project requires \$61.3 million in fiscal year 2011. Why does the budget not include this amount?

Answer. The fiscal year 2011 budget includes the minimum required to keep pace with the expected construction expenditures. Additional funding that would be available to the project in fiscal year 2011 would be obligated to the pumping plant and fish screen construction contract to reduce the amount remaining to be funded on the contract. Reclamation will continue to assess project funding needs as more refined cost estimates are available.

SAN JOAQUIN RIVER RESTORATION

Question. The San Joaquin River Settlement dedicates revenues from the Friant surcharge and capital repayment obligation to fund implementation of the agreement. The State of California also has committed funding to the Settlement. But the Parties to the Settlement, including the Interior Department, know that full implementation will require more than these dedicated revenues and the promised State funding. That's why the Settlement Act authorizes an additional \$300 million in appropriations. The Parties, including the Interior Department, always assumed—and assured me—that Settlement implementation would be funded each year with a mix of appropriations and non-appropriated dedicated revenues.

Yet for the second year in a row, the Department has requested no new appropriations for the Settlement in fiscal year 2011. The budget request includes only the dedicated revenues from the Friant surcharge and capital repayment for Settlement implementation plus a small amount from the CVP Restoration Fund. This

is not in keeping with my understanding of what was agreed to, nor does it conform to the understanding of the water users and conservation organizations who are Parties to the Settlement. They tell me that they are concerned that this budget reflects a lack of commitment by the Department to implement the agreement as agreed to.

As you know, a significant portion of the Settlement's non-appropriated dedicated revenues will come in a few years before the Settlement's largest expenditures for river restoration and water management projects, which will exceed those revenues. If you spend all or even most of the Settlement's non-appropriated funds in the short-term, how will the Department fund the major implementation costs that are coming within the next few years?

Answer. Funding for projects required by the Settlement can be funded by direct spending from dedicated revenues (subject to an \$88 million cap until 2019), appropriated discretionary funds, and State or local contributed funds.

Question. Do you expect to fund these projects entirely or mostly with appropriations?

Answer. With the funding cap of \$88 million on the direct spending from dedicated revenues until 2019, most of the implementation costs will need to come from both State contributions and Federal discretionary appropriations.

Question. Wouldn't funding the Settlement with a mix of appropriated and non-appropriated funds now tend to reduce and even out appropriation requirements in the future when costs will be the greatest?

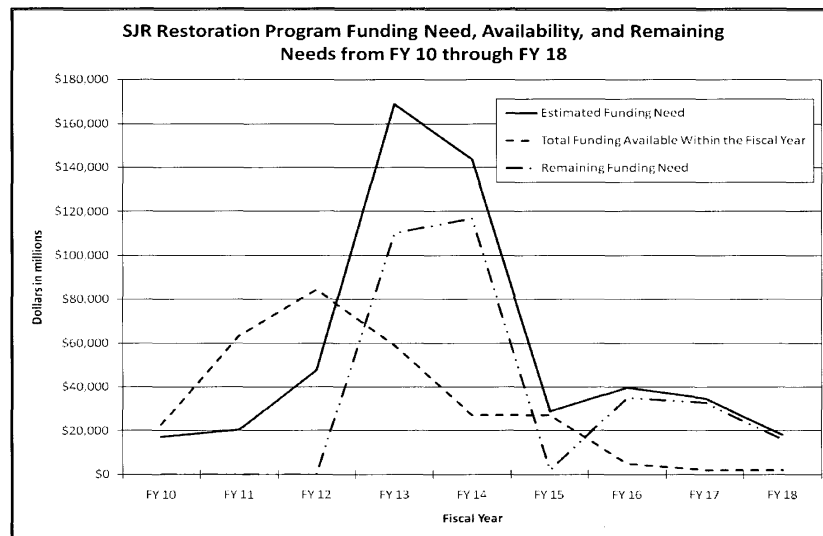
Answer. Yes, Federal appropriations, such as the \$5 million in fiscal year 2010, will reduce the magnitude of future appropriations required to implement the Settlement.

Question. If so, why isn't the Department following this course?

Answer. The Department's fiscal year 2011 budget request maintains a strong commitment to make progress on these issues, which are high priorities for the Department. There is \$2 million in the Central Valley Project Restoration Fund request in addition to the mandatory revenues available.

Question. Can the Department please provide me with a chart displaying an annualized estimate of funding needs for implementing all Settlement and Settlement Act projects, programs and activities together with an annualized estimate of revenues to the San Joaquin River Restoration Fund from all sources, including State funding?

Answer. The requested chart is provided below. The chart is not a reflection of or estimate of future funding requests in the President's budget. A list of assumptions made in developing the chart is also provided below.



Estimated funding need includes completion of the Settlement's high priority channel and structural improvements projects (also referred to as the Phase 1 projects), water management activities, fishery reintroduction planning and permit-

ting, and management and monitoring of flows. The estimated funding need does not include costs for the Settlement's Phase 2 projects, Settlement Paragraph 12 projects (other projects recommended by the Restoration Administrator), and fisheries reintroduction activities due to the current uncertainty of the scope and need for these actions. The estimated funding need for the Friant-Kern and Madera Canal Capacity Correction Project assumes funding this project over time as incremental improvements are made. Due to the requirement in section 10203 of Public Law 111–11 that funding for the Friant-Kern Canal Reverse Flow Project cannot impact or delay implementation of any other Settlement requirement, it is assumed that this project will not be initiated until 2017. Based on these assumptions, the estimated funding need for the program from fiscal year 2010 through fiscal year 2018 is approximately \$520 million.

Total funding available within the fiscal year includes funds from the following sources: Friant surcharge; Friant capital repayment; other Central Valley Project Improvement Act funding; appropriations in fiscal year 2010; and an estimate of State funding. Funds from the Friant surcharge and Friant capital repayment are assumed to be subject to the \$88 million Pay As You Go (PAYGO) cap. From fiscal year 2010 to fiscal year 2018, Reclamation estimates collecting approximately \$148.3 million above the \$88 million PAYGO cap that is not accounted for in the total funding available as it will require additional appropriations for use. Using these assumptions, the estimated total funding available from fiscal year 2010 through fiscal year 2018 is approximately \$292 million.

The remaining funding need is the difference between the total funding available and the estimated funding need. Using the assumptions we have described previously, the remaining annual funding need from fiscal year 2010 through fiscal year 2018 is approximately \$313 million.

Question. Please also indicate how much of the revenues collected to date into the SJR Restoration Fund have been expended as “mandatory spending” and how much is left within the current Pay As You Go (PAYGO) cap as available for mandatory spending from the SJR Fund.

Answer. As of April 1, 2010, approximately \$168,000 of the funds in the SJR Restoration Fund has been obligated as mandatory spending. Reclamation estimates that mandatory spending from the SJR Restoration Fund at the end of fiscal year 2010 will be \$5.6 million leaving \$82.6 million available after fiscal year 2010 under the \$88 million cap.

Question. In fiscal year 2008 and fiscal year 2009, this subcommittee provided a total of \$1.4 million for projects to restore the original water carrying capacity of the Friant-Kern and Madera Canals. Those projects were included in the Settlement Act to help meet one of the Settlement's goals of avoiding or minimizing water supply impacts to Friant water users. Interim flows this year will exceed 200,000 acre-feet and therefore the water supply impacts addressed by the Water Management Goal have already begun and can be expected to occur each year from now on. Bringing Water Management Goal projects online as soon as possible is important to the success of the Settlement. Yet despite 2 years of study funded by this subcommittee, the Department doesn't plan to start work on the canal repairs or other significant water management projects—in fiscal year 2011.

Answer. Reclamation has used the funding provided for these projects in fiscal year 2008 and fiscal year 2009 to make progress.

Question. Why?

Answer. Reclamation has been working to expedite the completion of the feasibility studies required by Public Law 111–11 (passed in March 2009), environmental permitting, and engineering design activities for these projects. For both the Friant-Kern and Madera Canal Capacity Correction Project and the Friant-Kern Canal Reverse Flow Project, preliminary design reports are scheduled for completion in June 2010, the National Environmental Policy Act compliance activities in July 2010, and feasibility reports in August 2010. Final design and preconstruction activities would be completed in fiscal year 2011. Due to the need to construct the canal capacity correction project in the winter, when the canals are dewatered, this project would not be ready for construction until fiscal year 2012. The pump-back project could go to construction in late fiscal year 2011; however, as it currently stands, the Friant-Kern Canal Reverse Flow Project is assumed to be delayed until 2017 as it will be challenging to make the findings required in section 10203 of Public Law 111–11 if this project is funding with monies from the SJR Restoration Fund.

Question. With regard to the Settlement's restoration activities, there have also been unexplained delays. For example, please explain why the Fisheries Management Plan is already significantly late when all the needed funding has been available?

Answer. Although Reclamation and other implementing State and Federal agencies have been working diligently to implement the Settlement, some restoration activities have been delayed. The primary causes for the delays are: (1) the Federal legislation to implement the Settlement was enacted more than 2 years later than the Settlement assumed; (2) access to private property has not been granted, which has significantly delayed necessary field studies; (3) funding from the State of California has required compliance with a variety of State laws that Reclamation would not have otherwise had to comply with, including the California Environmental Quality Act; and, (4) Reclamation has incorporated a variety of processes to increase coordination with the Settling Parties, Implementing Agencies, Third Parties, and the public in an effort to increase the potential for a successful program and facilitate permitting and approval actions. Reclamation remains committed to implementing the Settlement.

The San Joaquin River Restoration Program released a public review draft of the Fisheries Management Plan in June 2009. The Work Group received comments on the Plan and is currently preparing an updated version of the Plan in response to the comments received. The updated version of the Plan is anticipated to be ready and included as an attachment to the Program Environmental Impact Statement/Report, which is scheduled for release in June 2010. The Fisheries Management Plan is a living document that will be updated periodically as new information is gathered and uncertainties are addressed through monitoring and study activities.

Question. Why doesn't the Department plan to start significant restoration projects in fiscal year 2011?

Answer. Reclamation is currently in the formal planning and environmental compliance phases for the following three significant projects: (1) the Mendota Pool Bypass and Reach 2B Channel Improvements Project; (2) the Reach 4B, Eastside and Mariposa Bypass Low Flow Channel and Structural Improvements Project; (3) the Arroyo Canal Fish Screen and Sack Dam Fish Passage Project. These 3 projects address 9 of the 10 Phase 1 improvements in paragraph 11(a) of the Settlement. Each project includes substantial changes to the San Joaquin River system that will require a significant amount of upfront planning and design activities. Considering the time required to complete the planning, environmental reviews, permitting, preliminary and final designs, land acquisition, and awarding construction contracts, these projects are scheduled to be ready for construction in fiscal year 2013 or early fiscal year 2014.

Question. When will the canal projects and the pump-back project authorized by Part III of the Settlement Act be ready for construction?

Answer. Construction of both projects could begin in fiscal year 2012. The canal capacity correction project could be ready for construction late fiscal year 2011; however, to reduce interruptions in water deliveries from the Friant-Kern and Madera canals and resulting impacts to water users, this project needs to be constructed in the winter when the canal is typically dewatered. Therefore, this project would not be ready for construction until fiscal year 2012. The pump-back project could also initiate construction in late fiscal year 2011; however, as it currently stands, it will be challenging to make the findings required in section 10203 of Public Law 111-11 if this project is funded with monies from the SJR Restoration Fund.

Question. How can these projects be expedited without impacting other Settlement activities?

Answer. Given the requirements of Public Law 111-11, the National Environmental Policy Act, the Endangered Species Act, and other Federal laws that must be complied with, it is unlikely that either of the projects could initiate construction sooner than fiscal year 2012. To expedite the initiation of the pump-back project and the completion of the capacity correction project without impacting other Settlement activities, a sufficient amount of Federal appropriated funding for the other Settlement activities would be required.

Question. Could time and money be saved if non-Federal authorities assumed responsibility for carrying out the projects through a cooperative agreement with the Department?

Answer. The initial requirements called for in Public Law 111-11, the National Environmental Policy Act, the Endangered Species Act, and other Federal laws would still need to be completed and approved by Reclamation, so it is unlikely that the construction schedule could be expedited. It is possible that some time could be saved if non-Federal authorities assumed responsibility for carrying out the final design and construction of these projects through a cooperative agreement with Reclamation. In general, these non-Federal authorities are able to conduct more expedited contracting efforts which would result in a time savings for the projects. However, it is unclear if money can be saved as it is likely that both Reclamation and the non-Federal authority would contract the work to an outside private entity.

Question. What is the status of guidelines for implementation of the cost-shared groundwater program authorized in Part III?

Answer. Consistent with section 10202(c) of part III of subtitle A of title X of Public Law 111–11, Reclamation released the public review draft of the part III Guidelines for the Application of Criteria for Financial Assistance for Local Projects (Guidelines) on March 29, 2010. The Guidelines were available for a 60-day public review period. Reclamation anticipates releasing final Guidelines in late summer 2010.

QUESTIONS SUBMITTED BY SENATOR ROBERT F. BENNETT

QUAGGA MUSSELS

Question. In fiscal year 2010 we provided funding for Reclamation to establish a Quagga Mussel R&D program to determine ways to deal with this invasive species. What is the status of this effort?

Answer. Reclamation has a very active Research and Development program underway, working with all of the western States and several other Federal and local agencies, developing and testing several methods for early detection of mussels, deterrence of mussel attachment, removal of mussels, or killing of mussels in situ. Methods being tested include high-capacity filters, ultraviolet light, pulsed-pressure systems, bacterial by-product derived from *Pseudomonas fluorescens*, foul-resistant and foul-release coatings, high and low pH modulation, and predatory fish. Emphasis is placed on methods that are environmentally friendly and do not require costly permitting for use in open water systems. Reclamation is also developing a research plan in conjunction with the United States Geological Survey (USGS) and the Pacific States Marine Fisheries Commission to test multiple untested new and existing methods for cleaning mussels from recreational boats.

Beginning in 2009 and continuing in 2010, Reclamation applied ARRA funds to test approximately 200 reservoirs and other water bodies in the West for the earliest possible detection of mussel larvae. This program is coordinated closely with all of the western States. Results are reported to each of the States and to the associated Reclamation operating offices. This careful monitoring will provide the greatest lead time (up to 5 years) to plan, budget, and implement facility protection strategies if larvae are detected in a reservoir, before the infestation creates substantial problems for operation of our facilities.

Reclamation recently briefed the Metropolitan Water District of Southern California, the Water Research Foundation, and the USGS on current research and discussed new avenues for collaboration. Reclamation is also hosting the 2010 International Conference on Aquatic Invasive Species in August, with a primary focus on invasive quagga and zebra mussels in the western United States.

Question. How much funding is included in Reclamation's budget to address the control of quagga mussels?

Answer. Reclamation does not have a line item for addressing quagga mussels. Approximately \$1.5 million is allocated within the Science and Technology line item to support development and testing at several of our lower Colorado River dams that are already impacted by quagga mussels. Approximately \$200,000 is included annually in each region's O&M budget to support prevention, development of response plans, facility vulnerability assessments, public outreach and education, and coordination efforts with other agencies, stakeholders, and interested organizations.

Question. What are the estimated costs to Reclamation to deal with quagga mussels at Reclamation projects?

Answer. Apart from basic monitoring and outreach, the only Region expending significant funds on retrofitting facilities for control, management, and protection against mussels is the Lower Colorado Region, which has been dealing with invasive quagga mussels in Lakes Mead, Mohave, and Havasu since 2008. The table below provides a general summary of Reclamation-wide costs associated with planning, prevention, and mitigation for invasive quagga mussels to date. Reclamation is monitoring more than 100 of its high-risk reservoirs for early presence of quagga mussel larvae. However, it is not possible at this time to forecast how quickly the infestation will spread and, therefore, what the longer term costs will be for prevention and mitigation.

Reclamation Costs and Budget for Quagga/Zebra Mussels	Fiscal Year 2008 Actual Appropriated	Fiscal Year 2008 Direct Fund ¹	Fiscal Year 2009 Enacted Approp.	Fiscal Year 2009 Direct Fund	ARRA Funding	Fiscal Year 2010 Enacted Approp.	Fiscal Year 2010 Direct Fund	Total
Prevention	\$72,750	\$1,828	\$160,947	\$25,804	.....	\$458,000	\$50,000	\$769,329
Early Detection/Rapid Response	114,550	10,000	104,056	59,458	\$4,500,000	478,000	100,000	5,366,064
Control and Management	109,506	220,000	279,629	267,000	.....	510,000	305,000	1,691,135
Research	927,390	23,090	1,093,000	.....	.....	1,490,000	.....	3,533,480
Education and Outreach	262,001	1,158	403,208	22,142	.....	521,940	20,000	1,230,449
Subtotal	1,486,197	256,076	2,040,840	374,404	4,500,000	3,457,940	475,000	.....
Total	1,742,273	.....	2,415,244	.....	4,500,000	3,932,940	.....	12,590,457

¹ Direct Funding includes all funds and services provided by Reclamation customers, including power revenues, in-kind services, cost share contributions and direct or contributed funds.

QUAGGA AND ZEBRA MUSSELS COSTS/BUDGETS

Category Key

Prevention.—This includes specific prevention measures such as the preparation of facility assessment plans, boat/equipment inspection/cleaning, and related training. Early Detection and Rapid Response: This includes monitoring of invasive species that are beginning to appear, and quick coordinated responses, including the development of plans to destroy or contain invasive species before they become too widespread.

Control and Management.—This includes actions taken to control, limit, or reduce the impact of zebra and quagga mussels on water system function. Control methods are generally categorized under four topics: biological control, chemical control, cultural control, and mechanical control

Research.—This includes efforts to identify, develop, demonstrate, and implement (on a pilot or small-scale basis) conventional and promising new strategies and technologies to protect facilities from zebra and quagga mussels that which have potentially broad application for water and power infrastructure.

Education and Outreach.—This includes education and outreach programs to make the public aware that their actions can result in the introduction and spread of quagga and zebra mussels. Some examples include posting or distribution of signs, posters, and handouts in public recreation sites, or sponsoring public workshops and training. This also includes participation and leadership in regional, national, and international professional efforts to review and share knowledge on efforts to prevent, detect, and conduct research on quagga and zebra mussels.

DESALINATION RESEARCH AND DEVELOPMENT

Question. What research and development plans does Reclamation have for the Brackish Groundwater National Desalination Research Facility in 2011?

Answer. In general, the work at this facility focuses on resolving environmental issues and reducing the cost of treating inland brackish groundwater. Emphasis is being placed on the testing of technologies for the pretreatment and treatment of brackish groundwater, and disposal of concentrate, with special emphasis on the use of renewable energy to drive such processes.

Research funds for the Brackish Groundwater National Desalination Research Facility (Facility) were transferred to New Mexico State University (NMSU) in fiscal year 2008 (\$3.365 million) and fiscal year 2009 (\$2.0 million). In fiscal year 2010, NMSU developed the program for research at or associated with the Facility with requests for competitive, merit reviewed proposals to be advertised in late fiscal year 2010 and fiscal year 2011. Reclamation is advertising a fiscal year 2010 funding opportunity announcement for \$1.0 million for a project in which at least one pilot plant will be carried out at the Facility and much of the research will lead to pilot projects that will be constructed and/or conducted at the Facility. For fiscal year 2011, Reclamation has requested \$1.6 million for O&M of the Facility, and \$2.066 million for research on advanced water treatment technologies, some of which will occur at the facility.

To date, research at the Facility has included work with NMSU, General Electric, Sandia National Laboratories, University of Texas at El Paso, Colorado School of Mines, Veolia Water, and Ohio University. Funding for this research comes from a number of sources including Department of Defense (Army and Navy), Department of Energy, State of New Mexico, State of Texas, as well as the Bureau of Reclamation. Several other projects are in the discussion stages including renewable energy driven processes, innovative energy recovery systems, new desalination processes, and a partnership with the city of Alamogordo New Mexico, a major private sector company, and a local university.

The Facility provides all the required resources for researchers working with desalination systems, concentrate management issues, renewable energy/desalination hybrids, and small and rural systems.

Question. Will the fiscal year 2011 funding budgeted allow for meaningful research at the facility?

Answer. Historically, Reclamation has ensured that research appropriations produce the highest quality products by defining the research objectives to address the highest-priority questions, and funding research through an open, competitive, peer reviewed process. These have been the administration's standards for research administration.

This approach will be used to define and guide research priorities at the Facility for those appropriations that Reclamation controls. The amounts requested in the President's fiscal year 2011 budget are sufficient to undertake the important work of advancing the treatment of brackish groundwaters.

Reclamation's ability to ensure meaningful research is limited to the extent that the funds appropriated for this research are earmarked without an open, competitive process.

Question. What other advanced water treatment options are showing promise for impaired groundwater?

Answer. Many technologies exist to treat a range of brackish waters. Reclamation focuses its research on technologies that may represent a significant breakthrough in either cost reduction or effectiveness of treatment. Currently, two of the most promising technologies that Reclamation is developing are: (1) a truly chlorine-resistant thin-film composite reverse osmosis membrane that will allow pre-treatment with chlorine to prevent biofouling without the degradation of the membrane, and (2) a more efficient cellulose-triacetate membrane that is naturally chlorine resistant. Both technologies will likely be tested at the Facility.

In addition, Reclamation is exploring potential options with other Government agencies, universities, non-profits, and the private sector. Not only are there new membrane formulations being created and tested by Reclamation and others, innovative work is continuing on the development of cost effective concentrate disposal, reduced energy consumption/lower CO₂ footprint/renewables, reduced fouling/pre-treatment, and alternative desalination technologies such as forward osmosis, membrane distillation, electrodialysis, capacitive deionization, thermal technologies and others.

Question. Do you see any potential for Reclamation becoming involved in the construction of desalination plants?

Answer. Reclamation was involved in the design and construction of the world's first large-scale reverse osmosis desalination plant in the 1970s and 1980s, the Yuma Desalting Plant. The YDP applied innovations developed by the old Office of Water Research and Technology on a very large scale. Since then, a number of brackish desalination projects have received construction funding through the Water Reuse Program.

Given the very large global industry around design and construction of desalination plants, there does not appear to be a need for Reclamation to enter into this business. However, Reclamation may be able to play a role in providing designs or reviewing designs for systems that are not a focus of the mainstream design and construction industry. Potential examples include small scale plants that are part of a Reclamation Rural Water project, applications on tribal lands, and applications that are otherwise integrated with Reclamation projects.

Question. Why?

Answer. Historically, Reclamation has focused upon research and development of advanced water treatment technologies up through pilot scale testing and demonstration, and moving those technological advances to the private sector for commercialization.

MISCELLANEOUS

Question. You have only budgeted about \$380,000 for drought assistance in fiscal year 2011. Is that funding sufficient to address the drought issues that are anticipated next year?

Answer. Reclamation has many important programs that need to be funded, and has made its best effort to develop a budget that adequately balances the competing needs for these different programs.

Because Reclamation prepares its budget 2 years in advance, we are unable to forecast emergency needs for drought. However, we make every effort to address the greatest need with the funds available.

In addition to the Drought Program, Reclamation also addresses competing demands for finite water supplies through WaterSMART, which includes funding for the title XVI, WaterSMART Grants, and Basin Studies.

Question. What is the drought outlook for the West in 2011?

Answer. Precipitation outlooks are generally unreliable beyond 3 months. Because Reclamation does not forecast weather or drought conditions, we rely on the information provided by other agencies that focus on weather, including the National Oceanic and Atmospheric Administration's Climate Prediction Center (<http://www.cpc.noaa.gov>), and the Drought Monitor, managed by the National Drought Mitigation Center (<http://www.drought.unl.edu/dm/monitor.html>).

Question. In particular which areas are anticipated to experience the biggest impacts?

Answer. According to the National Oceanic and Atmospheric Administration's Climate Prediction Center, drought conditions through June 2010 are forecast to persist in the Pacific Northwest and northern Rockies due to low snowpack and above-

average temperatures. In addition, the El Niño winter has expanded drought conditions in the Hawaiian Islands.

RURAL WATER AUTHORITY

Question. Can you update us on the status of the Rural Water Program?

Answer. We began accepting applications for funding under the new Rural Water Program in the summer of 2010. Currently, Reclamation is in the process of finalizing internal directives (Directives and Standards) describing key aspects of program implementation, including the required content of appraisal investigations and feasibility studies as well as the process for approving those studies. Reclamation published the Directives and Standards for the Rural Water Program in July 2010, and plans to post a Funding Opportunity Announcement on grants.gov for the program in May 2010. Reclamation received 21 proposals totaling \$5.4 million in Federal funding request.

Question. We have appropriated more than \$3 million for the Rural Water program over the last 2 years, and yet no studies have been started. Will any studies for rural water systems be initiated this year with the \$2.7 million requested?

Answer. Rural water studies will be initiated this year. Reclamation expects to post a funding opportunity announcement on grants.gov in May 2010 and anticipates selecting studies for funding in late August. After the funding opportunity announcement is posted, project sponsors will also have the opportunity to submit an appraisal investigation or a feasibility study previously conducted without any financial or technical support from Reclamation. Reclamation will review these independent study submittals for eligibility and technical adequacy and will prepare the appraisal or feasibility reports for independent studies determined to be eligible for inclusion in the program, technically adequate, and conforming to Reclamation standards. Reclamation expects to receive at least six independent study submissions this year.

CUPCA

Question. The budget for CUPCA is up \$1 million when compared to fiscal year 2010. Is this funding level sufficient to continue to make progress on this critical project?

Answer. The fiscal year 2011 budget request together with funding from the American Recovery and Reinvestment Act of 2009 and the fiscal year 2010 appropriation will allow the CUPCA program to continue making sufficient progress.

Question. What is your total funding capability for CUPCA in fiscal year 2011?

Answer. Although there is always additional funding capability, the fiscal year 2011 budget request represents a prudent and manageable level of capability.

Question. What would this additional capability accomplish?

Answer. Additional capability would accelerate current projects.

SUBCOMMITTEE RECESS

Senator TESTER. I want to thank you all for coming today. I appreciate your service, and I appreciate the work you have to do. It's a tough job. Thank you.

The subcommittee is recessed.

[Whereupon, at 11 a.m., Thursday, March 11, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2011

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

NONDEPARTMENTAL WITNESSES

[CLERK'S NOTE.—At the direction of the subcommittee chairman, the following statements received by the subcommittee are made part of the hearing record on the Fiscal Year 2011 Energy and Water Development Appropriations Act.]

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

PREPARED STATEMENT OF THE SAN MATEO COUNTY HARBOR DISTRICT

OYSTER POINT MARINA/PARK BREAKWATER RECONFIGURATION

The San Mateo County Harbor District requests your support for a fiscal year 2011 appropriation of \$400,000 to the U.S. Army Corps of Engineers Continuing Authorities section 107 account to complete this vital project, which will facilitate the first new water transit service on San Francisco Bay and essential waterborne emergency response capability serving the northern San Francisco Peninsula. Through this project, the breakwater entrance has been widened to enable safe, fast, and comfortable access by new ferryboat service to and from the Marina serving east San Francisco Bay.

Completion of the project requires installation of wave attenuators and adaptive management to dissipate wave energy now entering the Marina's berthing area because of the entrance widening. This last task will provide increased protection to berthed vessels from southeasterly storm surges and protection of Marina facilities and property.

Oyster Point Marina/Park is located in the city of South San Francisco, and is operated for the city by the Harbor District under a Joint Powers Agreement. Oyster Point was designated by the San Francisco Bay Area Water Emergency Transportation Authority (WETA) as the initial expansion terminal facility for WETA's new regional ferry service on San Francisco Bay. This is due to the significant employee base working near the Marina in and around South San Francisco in life science industries. There are currently around 25,000 employees within a 4.5 mile radius from the Marina, which is forecasted to double by 2015. Many of these workers commute over the Bay bridges and contribute, and are adversely affected by, traffic congestion and air pollution. Water transit is an economically and environmentally viable alternative.

Additionally, the Marina has been identified as a vital component of WETA's emergency response plan for San Francisco Bay. The breakwater project including the wave attenuators is required to accommodate rapid waterborne emergency response activities, expanded vessel traffic, improve vessel access and safety, and new ferry traffic.

NORTHERN HALF MOON BAY SHORELINE IMPROVEMENT PROJECT

The San Mateo County Harbor District requests your support for a fiscal year 2011 appropriation of \$100,000 to the U.S. Army Corp of Engineers Continuing Authorities section 111 account for this project. Project goals are (a) to halt shoreline erosion now threatening the Coast Highway, which, as the only coastal artery in the region, is a homeland security concern as evidenced by the recent tsunami advisory for the California coast; (b) to enable restoration of anchorage area to the only designated Harbor of Refuge between San Francisco and Monterey Bay; (c) to restore public shoreline access and use adjacent to a major metropolitan area; (d) to demonstrate beneficial sand replenishment methods that may have broader environmentally sound applicability; and (e) overall, to insure that the Federal Pillar Point Harbor breakwater performs as intended.

The Pillar Point Harbor breakwater was built around 1960 to create a harbor of refuge for the commercial fishing fleet and other vessels. While serving its primary function, the breakwater has caused erosion of the adjacent beach and bluff areas by preventing sand movement along the shoreline and by scouring the area next to the breakwater. This shoreline erosion has increased over time, destroying one road and threatening California Highway 1 and several structures, and causing loss of a heavily used public beach. A July 2009 Army Corps of Engineers Initial Appraisal concluded that there is sufficient cause for Federal interest in a shoreline improvement project, which is supported by government agencies and the public.

PILLAR POINT HARBOR, CALIFORNIA

The San Mateo County Harbor District requests your support for a fiscal year 2011 appropriation of \$2.2 million to the U.S. Army Corps of Engineers Operation and Maintenance account to complete storm damage repairs to the Federal breakwater at Pillar Point Harbor. Completion of repairs already in progress will restore breakwater integrity and navigation safety to a designated critical Harbor of Refuge vital for the fishing industry, waterborne commerce, recreational boating, and local and regional economies.

Breakwater-caused shoreline impacts south of the breakwater are adversely affecting adjacent State highway safety, causing loss of public beach use, and affecting shoreline property, and must be addressed by a demonstration project. The recent tsunami advisory for the California coast highlighted the need for the proposed action, especially as State Highway 1 is the only traffic artery on this stretch of coast available for emergency response needs. This project element will address damage prevention or mitigation along the northern open-ocean shoreline of Half Moon Bay that are attributable to construction of the Federal breakwater.

The eroding beach shoreline fronts on Monterey Bay National Marine Sanctuary waters, which are administered for this sanctuary under agreement by the Gulf of the Farallones National Marine Sanctuary. Project performance will show how human activities can be sustained without causing adverse impacts on Sanctuary resources.

This project thus addresses urgent Federal concerns with navigation safety, homeland security, marine resource protection, and public use, and will complete work already begun.

 PREPARED STATEMENT OF THE AMERICAN SHORE & BEACH PRESERVATION ASSOCIATION

I am Mayor Harry Simmons of Caswell Beach, North Carolina and President of the American Shore & Beach Preservation Association. ASBPA appreciates this opportunity to provide written testimony to the Senate Energy and Water Appropriations Subcommittee on the fiscal year 2011 budget of the Corps of Engineers. Over the years, the Appropriations Committees, and Congress as a whole, have been extremely supportive of what is known as the Federal shore protection program. We are very grateful for the many times you stood up to what has seemed like the never-ending efforts of one administration after another to cripple or terminate this program.

The Federal coastal restoration program represents our Nation's commitment to responsible coastal stewardship. Our coasts are the gateway to America. They provide the seagoing and intracoastal water highways which carry most of America's commerce. They are the home to hundreds of animal and plant species that are not likely to be found elsewhere. They sustain tens of thousands of middle-class and service worker jobs which, together with taxes on business profits, bring billions of dollars into the Federal Treasury each year.

This administration has been far more willing to discuss and budget for coastal programs and projects than at any time since 1995. That is indeed refreshing. However, the recommendation the President has made in his fiscal year 2011 budget of approximately \$55 million is only one-tenth of what ASBPA's national survey shows as the need for \$460 million for the Federal cost-share of what is needed to fund authorized shoreline projects and studies. Inevitably and regrettably, this optimal funding number increases each year that we have done this analysis. The Federal Government has not provided its share of the cost of studies and projects while non-Federal sponsors have their 35 to 50 percent share in hand because they have set aside funds in advance.

Following are our recommendations for funding some of the national programs promoting coastal stewardship. They are not listed in priority order. ASBPA hopes the subcommittee will give consideration to each of these requests. Thank you for considering our views. We look forward to continuing to work with the subcommittee on the funding and effectiveness of coastal programs.

NATIONAL PLANNING CENTERS OF EXPERTISE (GI)

The Corps of Engineers designated six national Planning Centers of Expertise and identified their roles in support of plan formulation and complex technical evaluations associated with plan formulation. These Planning Centers of Expertise provide specialized planning talent to enhance and supplement the capabilities of the districts. They include Deep Draft Navigation and Small Boat Harbors, Inland Navigation, Ecosystem Restoration, Coastal Storm Damage Reduction, Flood Risk Management, and Water Management and Reallocation Studies.

ASBPA has found that the Coastal and Storm Damage Reduction Planning Center of Expertise (Coastal PCX) has been extremely helpful to Districts and their customers and has increased the quality of the Corps work product and re-instilled confidence on the part of local sponsors in the Corps of Engineers. In fiscal year 2009, Congress designated some funding allocated to the Planning Support Program (GI account) for the 6 centers. In fiscal year 2010, the Senate bill designated funding specifically for the Coastal PCX. This was not carried over in conference.

ASBPA Request.—\$1,500,000 for the 6 PCX's as a separate line item under the GI account. No funding is included in the President's budget request.

WATER RESOURCE PRIORITIES REPORT (GI)

Section 2032 of WRDA 2007 provides the Corps of Engineers with the direction and authority to examine risk assessment and risk reduction in the broadest and yet most practical approach imaginable. We understand the Corps has requested but not received funding from Congress to do the report.

ASBPA Request.—\$2 million to undertake what is likely to be a 2-year effort to meet the mandate of section 2032. No funding is included in the President's budget request.

SECTION 2038—NATIONAL SHORELINE EROSION CONTROL DEVELOPMENT PROGRAM (CG)

Section 227 of WRDA 1992 created a program to test new technologies that will improve the performance of Federal beach restoration projects and reduce their cost. Section 2038 of WRDA section 2038 moved the section 227 program into the section 103 Small Shoreline Protection Projects Continuing Authorities Program. The President has earmarked every dollar of the funding he requested for section 103 projects, and not one of those dollars is requested for the Shoreline Erosion Control development program.

ASBPA Requests.—\$8,975,000 to plan, construct, and/or monitor at least 9 demonstration projects. No funding is included in the President's budget request.

REGIONAL SEDIMENT MANAGEMENT RESEARCH PROGRAM (O&M)

RSM is not a faster way to plan and execute water resources projects; it is a better way. It is a systems-based approach that solves sediment-related issues through integrated management of littoral, estuarine, and riverine sediments and projects to achieve the type of balanced and sustainable approach that is lacking when planning and funding is done on a project-by-project basis. RSM will be a major factor in protecting environmental resources while also bringing efficiencies and greater effectiveness that would otherwise not be achievable.

ASBPA Request.—\$9 million to continue Federal, State, and local cooperative RSM efforts in almost a dozen States. The President has requested \$2 million for this program.

REGIONAL SEDIMENT MANAGEMENT PROGRAM AUTHORIZED BY SECTION 2037 OF WRDA
2007 (CG)

This is now known as the section 204 program and is separate from the RSM research program above. This program enables the Corps to do at least two things that the Research program cannot do: (1) Construction RSM projects; and (2) Cooperate with States that have initiated their own RSM studies.

ASBPA Request.—\$15 million to fund the planning and construction phases of RSM projects from New England to California. There is no funding included in the President's budget request.

NATIONAL COASTAL MAPPING PROGRAM (GI)

This is an interagency effort to survey the U.S. shoreline on a recurring basis to support regional sediment management, construction, operations and maintenance, and regulatory functions in the coastal zone. With this data, governmental entities at all levels will be better able to manage America's coastal resources.

ASBPA Request.—\$13 million to complete the first survey of the entire U.S. shoreline of the lower 48 States. The President has requested \$7 million for this program.

COASTAL FIELD DATA COLLECTION PROGRAM (GI)

Without good data, there can be no project planning for the present and no systems planning for the future. CFDC includes the Corps' Field Research Facility which obtains data on longer-term coastal processes, the Wave Information Study to develop and analyze new surge and wave data. This line item also includes several other programs such as SWIMS, PILOT, and MORPHUS.

ASBPA Request.—\$6,600,000 to complete construction of projects and continue monitoring and evaluation of completed projects. The President has requested \$1.4 million for all of the programs under this heading.

COASTAL DATA INFORMATION PROGRAM (O&M)

This is the first year the President has proposed funding a separate line item. Nevertheless, this program was established in 1975 and has now been deployed at over 142 stations and has archived 200 GB of wave duty. The CDIP also contains information that is accessed daily by the Navy, Coast Guard, Marines, as well as those commercial fisherman and others in the private sector.

ASBPA Request.—\$5 million. The President's budget request contains \$3 million for this line item, which does not permit to expand to the east coast.

NATIONAL SHORELINE MANAGEMENT STUDY (GI)

Authorized by WRDA 1999, this study will provide the first detailed report since 1971 on which sections of the U.S. shoreline are accreting and which are eroding. Without this basic information, none of us knows how serious a problem coastal erosion is.

ASBPA Request.—\$500,000. The President has requested \$375,000 for this study.

NATIONAL HURRICANE PROGRAM (GI)

This program is a cooperative effort with FEMA. The studies provided by the National Hurricane Program (NHP) help State and local communities establish evacuation plans by determining the probable effects of a hurricane; predicting public response to the threat and advisories, and identifying appropriate shelters. Specifically, NHP conducts hazard and vulnerability analyses for coastal communities considering different types of storm threats. This includes an assessment of storm surge and wind impacts; existing road and other transportation systems, population (e.g., demographics, behavior analysis) and shelters. This information helps officials determine where individuals are most likely to go when evacuating from a storm.

The NHP assists coastal communities by developing evacuation zones, which helps determine where and when the public should be ordered to evacuate as a storm approaches. This recommendation is negotiated among decisionmakers within each community. Once the evacuation zones are established, the NHP provides each community with corresponding evacuation maps and suggested clearance times for the various types of storm categories. The communities determine how to utilize these tools and recommendations, in developing their evacuation plans.

ASBPA Request.—\$3 million as a separate line item in O&M. It is currently part of the National Emergency Preparedness Program and was allocated \$1 million from that program in fiscal year 2010.

FLOOD CONTROL AND COASTAL EMERGENCIES (FCCE)

According to the President's budget justification for this important category of funds: "FISCAL YEAR 2011 DISASTER PREPAREDNESS: This activity consists of functions required to ensure that USACE activities are ready to provide baseline response to disasters and emergencies . . . Planning and preparedness funding should be sought as part of the regular budget process, instead of relying on emergency supplementals. Recent earthquakes, Nor'easters, ice storms and tsunamis illustrate the need for preparedness funding and the ability to provide trained staff and resources immediately after or even prior to an event." ASBPA agrees with the need to include FCCE funding in the regular appropriations bill. Unfortunately, this has not been the case in recent years. When emergencies arise, the Corps has no money on hand to deal with them and must wait for a Supplemental Appropriations bill for that purpose.

ASBPA Request.—\$50 million. The President has requested \$30 million which is substantially below his fiscal year 2010 request.

PREPARED STATEMENT OF THE FIFTH LOUISIANA LEVEE DISTRICT

The Board of Commissioners for the Fifth Louisiana Levee District respectfully requests that construction funding for Mississippi River Levees be increased from the \$29,150,000 contained in the proposed budget for fiscal year 2011, to the U.S. Army Corp of Engineers' capability of \$56,238,000, and the Mississippi River Levee maintenance allocation be increased from the proposed \$7,582,000 to \$20,270,000.

Reduced funding, combined with the inability to let construction contracts under a continuing contract clause, has left thousands of people in Louisiana vulnerable to the adverse effects of a deficient levee system. Construction of levee enlargements is essential if the levee is to contain the "Project Flood" which is estimated to be 20 percent greater than the record Flood of 1927.

The effect of fully funded contracts for levee construction, now required under Public Law 109–103, (sec. 106 and 108), adopted by the 109th Congress in 2005, as opposed to the previous system of continuing contract clauses, has virtually halted enlargement of the Mississippi River Levee System in Louisiana. Year after year, as the cost of projects and maintenance has increased, funding for levee systems and flood control has been reduced. The current proposed budget is no exception, with only \$240 million allocated for the entire Mississippi River and Tributaries (MR&T) project. We request that be increased to the Corp's capabilities of \$550 million.

Since the Mississippi River and Tributaries project was established, less than \$11 billion has been invested. This investment provides benefits far beyond their actual cost to the taxpayer by offering protection to the 4 million citizens, 1.5 million homes, 33,000 farms, and countless vital transportation routes from destructive floods.

With the help of Congress, great progress has been made in the Mississippi River Valley over the years, but there is still much to be done, and because of that, we urge Congress to increase funding to the Corp of Engineers in fiscal year 2011, to insure that the Corp is not forced to halt or delay contracts for levee construction essential to the well being of this Nation. It is vital that the MR&T project(s) be completed at the earliest possible date. This can only be accomplished through adequate funding and repeal of the mandate for contracts to be fully funded prior to the beginning construction.

PREPARED STATEMENT OF THE BOARD OF LEVEE COMMISSIONERS FOR THE YAZOO-MISSISSIPPI DELTA

These are changing times for this country's flood control community and those whom they seek to protect. As you in your wisdom consider such weighty matters as Levee Certification coupled with FEMA's new mapping initiative, the Clean Water Act, new Objectives, Principles and Standards for the Corps of Engineers and a related Executive order, a new WRDA bill and 2011 funding for the Mississippi River and Tributaries Project, we urge you to do so with one guiding principle: First do no harm.

As you craft a new approach to flood control activities for the 21st century, we urge you not to lose sight of the successes of the 20th and what they have meant to this country. The land in and around the Mississippi River Valley is among the most fertile and bountiful on earth. Not only is it home to the salt-of-the-earth men and women of the Nation's heartland, but within it is produced a significant slice

of the U.S. export pie—the food and fiber that feed and clothe this Nation and the rest of the world.

You in this body and we in the flood control community are its stewards and as we move forward, we must do so always keeping in mind our duty to protect it. Update the Clean Water Act, but maintain its critical Navigable Waters clause; write new guidelines and standards, but avoid any radical departure from what has worked; enact a new WRDA bill, but enact one whose principal theme is to preserve and protect.

We are also keenly aware of the fiscal tightropes which must be walked in this country's current economic environment. Every dollar is critical and every expenditure must be prioritized. But what priority trumps the protection of our people and the wealth they produce? What role of government is more critical?

The administration proposes 2011 funding for the MR&T, truly one of this Nation's success stories with a virtually unmatched benefit to cost ratio, at \$240 million, an amount far less than you appropriated for 2010 and an amount even farther less than the Corps of Engineers' capability. But the final word is that of Congress, and we urge you to fund the MR&T umbrella of needed public works at the Corps capability level of \$550 million.

As a local levee board, our first priority should be and is the protection of the lives and livelihoods of our people. Simply put, the Mainline Mississippi River Levee makes life and development possible within the Mississippi Delta. Therefore, we ask you to fund Mississippi River levees construction at \$56.238 million and their maintenance at \$20.270 million.

Our levee board is proud to have been the sponsor of the Upper Yazoo Projects, one of the most successful such endeavors in the country, given testament by the fact that it faces absolutely no environmental opposition. To advance its completion, we urge that you appropriate \$13.3 million.

Mississippi's four flood control reservoirs have proven to be remarkably successful structures, but they are aging and we request the appropriation of a total of \$54.113 million for their maintenance.

Also of primary importance to us is the Delta Headwater Project, which helps to prevent our Delta streams from filling with soils eroded from the hills. We ask that it be funded at \$23.2 million.

The other investigations, construction projects and maintenance efforts of importance to our levee district are as follows. We ask they be funded in 2011 at their respective Corps of Engineers capability levels:

- Channel Improvements—\$59.646 million.
- Big Sunflower River—\$2.2 million.
- Main Stem—\$25,000.
- Yazoo Basin Reformulation—\$1.6 million.
- Channel Maintenance—\$89.484 million.
- Revetments and Dikes—\$72.328 million.
- Vicksburg Harbor Maintenance—\$750,000.
- Big Sunflower Maintenance—\$1.684 million.
- Main Stem Maintenance—\$3.4 million.
- Tributaries—\$1.017 million.
- Whittington Auxiliary Channel—\$400,000.

PREPARED STATEMENT OF THE BIG BEAR MUNICIPAL WATER DISTRICT

The Big Bear Municipal Water District appreciates the opportunity to submit this testimony for the record in support of the \$650,000 request in the fiscal year 2011 appropriations for the Santa Ana River and Tributaries, Big Bear Lake, CA for the general investigations budget of the U.S. Army Corps of Engineers. The Big Bear Municipal Water District is an independent special district of the State of California, responsible for the overall management of Big Bear Lake, Southern California's Premier recreational Lake.

Located 100 miles east of Los Angeles, the Big Bear Lake recreational area attracts visitors from across southern California and beyond. Annually, the greater Big Bear area receives over 6.5 million visitors from around the world. The Lake is a unique recreational and natural resource, offering some of the most beautiful high elevation scenery in southern California. The lake has a depth of 72 feet, and is about 7 miles in length and about 1.5 miles wide at its greatest width.

The problems at Big Bear Lake are very similar to the more publicized environmental problems at Lake Tahoe. The purpose is to implement a project for aquatic habitat restoration in Big Bear Lake. Most of the Lake's environmental problems are created by the activities in the Federal owned lands in the surrounding water-

shed. The removal of nutrient laden sediment that has accumulated is critical to improving the Lake's water quality, controlling nuisance aquatic plant growth, enhancing the wildlife habitat, and maintaining boating and fishing access. The Lake is on the EPA's 303d list of impaired water bodies, with listings for nutrients (phosphorous and nitrogen), invasive aquatic plants, and mercury. Big Bear Lake dry year TMDL's for nutrients and invasive aquatic plants have been developed. Removal of sediment loads is a major remediation requirement. Big Bear Lake is adjacent to the Pacific Flyway and is home to numerous waterfowl, including the wintering bald eagle. Most recently, the Lake is threatened by the introduction of the invasive species, Quagga Mussel.

We are in the 8th year of an ecosystem restoration feasibility study being conducted by the U.S. Army Corps of Engineers, general investigations program. We are seeking funds for completion of the feasibility phase. The water district is the cost-sharing sponsor and has met all our local cost sharing responsibilities.

The Congressional Interests for this feasibility study are Senator Barbara Boxer, Senator Dianne Feinstein and Congressman Jerry Lewis (R-41st).

Our Contact information is: Mr. Scott Heule, General Manager, Big Bear Municipal Water District, P.O. Box 2863, Big Bear Lake, CA 92315-2863. Telephone: 909-866-5796, Fax: 909-866-6485, e-mail Address: sheule@bbmwd.org.

RECOMMENDATION FOR YOUR CONSIDERATION

We support the \$650,000 request to provide in the U.S. Army Corps of Engineers General Investigation Budget, for fiscal year 2011 to advance the Santa Ana Tributaries, Big Bear Lake, CA aquatic habitat restoration study being conducted by the Corps. Thank you.

PREPARED STATEMENT OF THE LITTLE RIVER DRAINAGE DISTRICT

Dear Senator Dorgan: My name is Sam M. Hunter, DVM of Sikeston, Missouri. I am a veterinarian, landowner, farmer and resident of southeast Missouri.

I am the President of The Little River Drainage District, the largest such entity in the Nation. Our District serves as an outlet drainage and flood control District to parts of seven counties in southeast Missouri. We provide flood control protection to a sizable area of northeast Arkansas as well. Our District is solely tax supported by more than 3,500 private landowners in southeast Missouri.

My remarks will be directed toward the Mississippi River and Tributaries Project (MR&T) and the St. Francis River Basin portion of the MR&T. Those funds when properly expended are investments yielding a return of substantial benefits to the American taxpayer throughout this Nation. They are used to prevent flooding to much of our valuable farmland, to industrial sites, and to upgrade our ever aging locks and dam system on our navigable streams which will prevent unscheduled lock closures, modernize our hydro-electric plants, and restore some of our environmental assets. MR&T authorized by Congress in 1928 and still not completed is returning back to our Nation \$25 for every dollar expended. What a good investment.

The \$4.6 billion of stimulus funding provided the Corps of Engineers in 2009 was greatly appreciated. Several needed projects were commenced and completed which otherwise would not have occurred. Much more needs to be done to provide the Mississippi Valley the flood protection its citizens need and the extreme need to modernize our inland waterway system.

Many jobs would be realized and many products would be purchased throughout the entire Mississippi Valley and the watersheds which discharge into this system if an aggressive modernization of our Inland Waterway was put in motion. We must put people back to work and this will help considerably. The stimulus funds helped, however, there still remains room for more funding. This District supports the request of the Mississippi Valley Flood Control Association for funding levels at \$550 million for the MR&T Project. This project as well as all of the subsidiary projects within it are returning back to the U.S. Treasury a minimum of \$6 for each \$1 invested.

Many of our locks and dams are over 70 years old and we are sitting idly by letting them deteriorate further. The current administration pledged to improve the infrastructure in this Nation. We are waiting to see that promise fulfilled. These much needed improvements are investments in this Nation's future. When they are fully underway many jobs will be created in the private sector thus serving a two-fold purpose. Please hear us and help us improve this vital part of our Nation.

We believe Congress needs to intervene and reverse the trend of OMB, this administration and of past administrations. We have not seriously invested in our waterway infrastructure for decades but we must. Local economies will be affected

positively by these investments. Local labor will be used. Local businesses will provide needed materials. This would be a major boost to our economy. Each year OMB and recent administrations have submitted low budget amounts for this worthwhile project and we have had to rely on Congress to “fix” the problem. You should not be burdened with this task. Someone needs to inform OMB what projects need funding which are assets to our Nation and not a liability.

Investing in our waterways is a great way to stimulate the economy, which currently is very much needed, and at the same time be building and making investments into a system for the future which will return back more dollars than expected. We petition you to give this vital industry of our Nation a strong endorsement and do all you can to ensure our waterways system and carriers stay competitive with our foreign competitors.

I have the following additional comments for your benefit and consideration.

INFRASTRUCTURE

The current administration stated often during its campaign and after that a genuine concerted priority would be to invest in this country’s future, its infrastructure. When are we going to commence?

Our Federal road systems are crumbling. We must not wait for bridges to fail as recently happened in Minnesota before we act. We need to move forward across our entire Nation upgrading our Federal highway system in its entirety. This will take long term commitments not just a “stimulus” now and then. We need to put a plan in place, work the plan and fund it properly each year until we have completed the task.

Are we truly interested in fuel independence—a cleaner environment—a better economy? If we are why don’t we have someone step forward to be a champion for our “waterways” system? We have locks and dams which are an average of 50 years old. Parts are having to be fabricated since they are no longer manufactured. Tows are having to be broken up to pass because our locks and dams are too short and not modernized. Many undue delays are occurring. This does not permit our carriers to compete fairly with the foreign shipping industry. We must start a concerted effort to improve this part of our Nation’s infrastructure.

Locks, dams, hydropower, recreation, flood control, water supplies and all other benefits from the construction, operation and maintenance of these features on our rivers benefit our entire Nation not just a few. It is a national asset and it must be operated and funded as a national benefit. Private industry can not and will not operate this system fairly and in the best interest of our Nation.

Environmentally moving goods and freight throughout our Nation via of water is much cleaner, less intrusive, and far more environmentally acceptable than highways or rail. Noise pollution, air pollution, land pollution are substantially less when we move the mass amount of goods possible by water.

Fuel efficiency comparison is a “no brainer”. For instance 1 gallon of fuel moves 155 tons of freight by truck, 413 tons of freight by rail and 576 tons of freight by water. What part of this do we not understand? Why can’t we realize such an endeavor would reduce much of our fuel needs and take much pressure off our highway system?

Economically investing wisely in our waterways effects much of our Nation—not just a regional portion. Consider it being possible to board a waterborne vessel at the Port of New Orleans, Louisiana and one can touch 36 States of this Nation and 6 provinces in Canada without ever getting onto land. Over 75 percent of our population lives along water. Only two of our major cities are not on water, namely, Atlanta, Georgia and Denver, Colorado. With the many ports throughout the Mississippi Valley, which network many more people inland, it is evident many local economies will be benefited when investments are made in our water infrastructure.

We seem to be ready, willing, and capable of improving the infrastructure of other nations at the expense of our taxpayers but seem reluctant to do the same for our Nation. It is far past time to reward the American taxpayer with a return for the money he provides each year and stop using those funds to benefit those nations who are our enemies.

It has been estimated our waterway infrastructure needs \$100 to \$120 billion to modernize, upgrade and be made functional. Lets start now by setting a 10 year goal to modernize that system and then plan to meet that goal and exceed same when possible. Currently we are spending \$13 billion each month to fight terrorism in Iraq and Afghanistan which is more spent in 1 year of what is needed to bring our waterways up to a finished plan. Perhaps we could cut the 10 year plan to even 5 years by eliminating much of that funding, lets try.

I wish to thank you very much for your time and kind attention and for taking the time to review the above. We would be very appreciative of anything this subcommittee can do to help us improve our environment, improve our livelihood, and improve the area in which we live and work which ultimately is good for America. We are also very appreciative of all this subcommittee has done in the past. We trust you will hear our pleas once more and act accordingly.

PREPARED STATEMENT OF THE CITY OF FLAGSTAFF, ARIZONA

Chairman Dorgan, Ranking Member Bennett, and distinguished members of the subcommittee, thank you for allowing me to testify on behalf of the city of Flagstaff, Arizona in support of \$8 million in the Army Corps of Engineers budget for the Rio de Flag flood control project in fiscal year 2011. The Rio de Flag flood control project is critically important to the city, to northern Arizona, and, ultimately, to the Nation.

As you may know, Mr. Chairman, with this subcommittee's help over the last several fiscal years, Rio de Flag received more than \$20 million to continue construction on this important project. We are extremely grateful that the subcommittee boosted this project well above the President's request every year, and we would appreciate your continued support for this project in fiscal year 2011.

Like many other projects under the Army Corps's jurisdiction, Rio de Flag received no funding in the President's fiscal year 2011 budget, although the Corps has expressed a capability of \$8 million to continue construction on the project and have been unwavering in their support of it. We are hopeful that the subcommittee will fund the Rio de Flag project at \$8 million when drafting its bill in order to keep the project on an optimal schedule.

Flooding along the Rio de Flag dates back as far as 1888. The Army Corps has identified a Federal interest in solving this long-standing flooding problem through the Rio de Flag, Flagstaff, Arizona—Feasibility Report and Environmental Impact Study (EIS). The recommended plan contained in this feasibility report was developed based on the following opportunities: (1) flood control and flood damage reduction; (2) environmental mitigation and enhancement; (3) water resource management; (4) public recreation; and (5) redevelopment opportunities. This plan will result in benefits to not only the local community, but to the region and the Nation.

The feasibility study by the Corps of Engineers has revealed that a 500-year flood could cause serious economic hardship to the city. In fact, a devastating 500-year flood could damage or destroy approximately 1,500 structures valued at more than \$450 million. Similarly, a 100-year flood would cause an estimated \$100 million in damages. In the event of a catastrophic flood, over one-half of Flagstaff's population of more than 60,000 would be directly impacted or affected.

In addition, a wide range of residential, commercial, downtown business and tourism, and industrial properties are at risk. Damages could also occur to numerous historic structures and historic Route 66. The Burlington Northern and Santa Fe Railway (BNSF), one of the primary east-west corridors for rail freight, could be destroyed, as well as U.S. Interstate 40, one of the country's most important east-west interstate links. Additionally, a significant portion of Northern Arizona University (NAU) could incur catastrophic physical damages, disruptions, and closings. Public infrastructure (e.g., streets, bridges, water, and sewer facilities), and franchised utilities (e.g., power and telecommunications) could be affected or destroyed. Transportation disruptions could make large areas of the city inaccessible for days.

Mr. Chairman, the intense wildfires that have devastated the West during the last several years have only exacerbated the flood potential and hazard in Flagstaff. An intense wildfire near Flagstaff could strip the soil of ground cover and vegetation, which could, in turn, increase runoff and pose an even greater threat of a catastrophic flood.

In short, a large flood could cripple Flagstaff for years. This is why the city believes it is important to ensure that this project remains on schedule and that the Corps is able to utilize its expressed capability of \$8 million in fiscal year 2011 for construction of this flood control project.

In the city's discussions with the Corps, both the central office in Washington and its Los Angeles District Office also believe that the Rio de Flag project is of the utmost importance and both offices believe the project should be placed high on the subcommittee's priority list. We are hopeful that the subcommittee will consider this advice and also place the project high on its priority list and fully fund the project at \$8 million for fiscal year 2011.

It is important to note that the city has secured the necessary property rights to begin construction, and the city is prepared to assume the costs for the non-Federal portion of the cost-sharing agreement.

The city of Flagstaff, as the non-Federal sponsor, is responsible for all costs related to required Lands, Easements, Rights-of-Way, Relocations, and Disposals (LERRD's). The city had already secured the necessary property rights to begin construction in 2004. Implementation of the city's Downtown and Southside Redevelopment Initiatives (\$100 million in private funds) are entirely dependent on the successful completion of the Rio de Flag project. The Rio de Flag project will also provide a critical missing bike/pedestrian connection under Route 66 and the BNSF Railroad to replace the existing hazardous grade crossings.

Mr. Chairman, the Rio de Flag project is exactly the kind of project that was envisioned when the Corps was created because it will avert catastrophic floods, it will save lives and property, and it will promote economic growth. In short, this project is a win-win for the Federal Government, the city, and the surrounding communities.

Furthermore, the amount of money invested in this project by the Federal Government and the city—approximately \$54 million (as authorized by WRDA)—will be saved exponentially in costs to the Federal Government in the case of a large and catastrophic flood, which could be more than \$450 million. It will also promote economic growth and redevelopment along areas that are currently underserved because of the flood potential.

In conclusion, the Rio de Flag project should be considered a high priority for this subcommittee, and I encourage you to support full funding of \$8 million for this project in the fiscal year 2011 Energy and Water Development Appropriations bill. Thank you in advance for your consideration.

PREPARED STATEMENT OF THE PORT OF HARLINGEN—HARLINGEN, TEXAS

HISTORY AND BACKGROUND

Port Harlingen, also known as the Rio Hondo Port, is on the Arroyo Colorado and Farm Road 106, on the eastern city limits of Harlingen. The channel connecting Arroyo Colorado with the Gulf Intracoastal Waterway was completed and dedicated on February 27, 1952. It is 12 feet deep and 125 feet wide and has a turning basin measuring 400 by 600 feet. By 1962 the port was handling \$2.5 million in commerce. In 1983 commodity shipments amounted to 455,430 short tons, and they increased to 801,003 short tons in 1984, when the port housed 10 industries with commercial leases. In 1989 Port Harlingen handled 728,954 short tons.

The port is located 4 miles east of Harlingen, Texas on Highway 106. It is 25 miles west of Mile Marker 646 on the Gulf Intracoastal Waterway, which stretches from the Mexican border at Brownsville, Texas, along the entire coast of the Gulf of Mexico to St. Marks, Florida. The Gulf Intracoastal Waterway provides over 1,300 miles of protected waterway. The Harlingen channel is maintained to a width of 125 feet and a depth of 12 feet and is supplied by the Arroyo Colorado, a fresh water river.

PROJECT DESCRIPTION

The project is located in the vicinity of Rio Hondo and Harlingen in Cameron and Willacy Counties, Texas. The project consists of a channel 25.8 miles long. The channel extends with the main channel of the GIWW through the Arroyo Colorado to the turning basin at Harlingen. It also included a barge-mooring basin near the channel's junction with the GIWW. Authorized channel dimensions are 12 feet by 125 feet. One hundred percent of all the sugar (180,000 tons), 95 percent of all commercial fertilizer products and 30 percent of all gasoline products for south Texas is shipped through the Port of Harlingen. The Corps of Engineers has determined a need for levee work in Harlingen Channel that were destroyed during recent storms in Texas.

ECONOMIC IMPACT OF THE PORT OF HARLINGEN

The Port of Harlingen provides efficient and economical transportation to points as close as Corpus Christi and as far as the Great Lakes. Terminal docks and other facilities ease shipments into and out of the Port of Harlingen, and over 150 acres of on-and-off channel sites are available for industrial firms requiring economical transportation and attractive land lease rates. The port is also an important link in the comprehensive transportation network of the Rio Grande Valley of Texas. Southern Pacific Company rail lines at the port, along with switching capabilities

with Union Pacific Railways, keep products moving to Texas locations and on throughout the U.S. and Mexico. Additionally, as was stated in the project description above, 100 percent of all the sugar (180,000 tons), 95 percent of all commercial fertilizer products and 30 percent of all gasoline products for south Texas is shipped through the Port of Harlingen.

COMMUNITY AND INDUSTRY SUPPORT

One industry the Port of Harlingen is involved in is sugar. The Port of Harlingen Authority has bid and is building a \$3.8 million sugar transfer building to load barges of sugar for shipment to Louisiana. The sugar mill shipped 171,962 short tons of sugar to Louisiana in 2006–2007 and should ship in excess of 180,000 short tons in 2007–2008. The mill cannot ship raw sugar by rail because the finish mills in Louisiana are not currently capable of receiving raw sugar by rail, and instead are organized to ship finished sugar by rail. To ship the sugar by truck would take over 6,878 truckloads at 4 times the cost. If this occurs, recent economic studies have determined that it would put the mill out of business.

Additional industries present at the Port are Agro Alliance, Helena Chemical, UAP and Wilber Ellis, which have facilities at the port or down stream that handle 99 percent of all of the commercial liquid and dry fertilizer for south Texas. CMX also has a terminal at the port that handles much needed concrete sand shipped from Victoria and Cement shipped in from Mexico.

Valero Energy Corporation, which once actively sent gas and diesel fuel to the Port of Harlingen by barge, also has projects underway at the Port. In October 2005, Valero finished a pipeline to the valley to service all three terminals and stopped all barge traffic. In July 2006 they started barging (about two barges a month) ultra low sulfur diesel to the valley. They are currently shipping the entire ultra low sulfur diesel by barge and the traffic is almost back to levels achieved before their pipeline was built.

WHAT WE NEED FROM THE SUBCOMMITTEE IN FISCAL YEAR 2011

The administration's fiscal year 2011 budget did not include funding for the levee work needed in Harlingen Channel. As deliberations on the Energy and Water Subcommittee on Appropriations commence, we would appreciate your help in securing the Corps capability of \$805,000 so that this project can move forward and ensure that the Gulf Intracoastal Waterway—Port of Harlingen received the important levee work identified by the USACE.

PREPARED STATEMENT OF THE BRAZOS RIVER HARBOR NAVIGATION DISTRICT— FREEPORT, TEXAS

HISTORY AND BACKGROUND

Port Freeport is an autonomous governmental entity authorized by an act of the Texas Legislature in 1925. It is a deep-draft port, located on Texas' central gulf coast, approximately 60 miles southwest of Houston, and is an important Brazos River Navigation District component. The port elevation is 3 to 12 feet above sea level. Port Freeport is governed by a board of six commissioners elected by the voters of the Navigation District of Brazoria County, which currently encompasses 85 percent of the county. Port Freeport land and operations currently include 186 acres of developed land and 7,723 acres of undeveloped land, 5 operating berths, a 45 feet deep Freeport Harbor Channel and a 70 feet deep sink hole. Future expansion includes building a 1,300-acre multi-modal facility, cruise terminal and container terminal. Port Freeport is conveniently accessible by rail, waterway and highway routes. There is direct access to the Gulf Intracoastal Waterway, Brazos River Diversion Channel, and State Highways 36 and 288. Located just 3 miles from deep water, Port Freeport is one of the most accessible ports on the gulf coast.

PROJECT DESCRIPTION

The fiscal year 2002 Energy and Water Appropriations signed into law included a \$100,000 appropriation to allow the United States Army Corps of Engineers (USACE) to conduct a reconnaissance study to determine the Federal interest in an improvement project for Freeport Harbor, Texas. The USACE, in cooperation with the Brazos River Harbor Navigation District as the local sponsor, has completed that study. The report indicates that "transportation savings in the form of National Economic Development Benefits (NED) appear to substantially exceed the cost of project implementation", thus confirming "a strong Federal interest in conducting

the feasibility study of navigation improvements at Freeport Harbor". Congress has to date appropriated over \$ 4 million for the study phase of the channel improvement project. This last phase of study for PED will move the project to completion of the feasibility report and ready the channel for construction.

Port Freeport has the opportunity to solidify significant new business for Texas with this improvement project. In addition, the improvement to the environment by taking a huge number of trucks off of the road, transporting goods more economically and environmentally sensitive by waterborne commerce is infinitely important to the community, the State, and the Nation. Moreover, the enhanced safety of a wider channel cannot be overstated. The emergence of an LNG facility at Port Freeport—a joint venture of Conoco-Philips and Cheniere Energy further solidifies the importance of keeping this critical waterway at optimum depth and width.

ECONOMIC IMPACT OF PORT FREEPORT

Port Freeport is 13th in foreign tonnage in the United States. It is responsible for augmenting the Nation's economy by over \$9 billion annually and generating over nearly 24,000 jobs in Texas, over 11,000 direct. It also augments the economy by providing annual State and local taxes of over \$150,000 and an additional of over \$300 million in Federal tax revenues. Its chief import commodities are bananas, fresh fruit and aggregate while top export commodities are rice and chemicals. The port's growth has been staggering in the past decade, becoming one of the fastest growing ports on the gulf coast. Port Freeport's economic impact and its future growth is justification for its budding partnership with the Federal Government in this critical improvement project.

Examples of existing tenants at the Port include:

Dole Fresh Fruit.—Dole has a weekly sailing arriving at Port Freeport with green fruit and other exotic fruits, mainly from Guatemala and Honduras. Dole has been a tenant of Port Freeport for the past 23 years, occupying lease sites comprising of 12 acres and has just renewed its lease for another 5 years. There are approximately 450 jobs associated with this operation.

Chiquita Fresh North America.—Chiquita is very similar to the Dole operation. Chiquita also has a weekly sailing and has been a tenant of Port Freeport for the past 12 years. There are about 400 jobs associated with this operation.

Turbana Banana & Isabella Shipping.—Turbana and Isabella, divisions of Uniban, based in Colombia import 2,000 pallet loads of green fruit and other exotic fruits into Port Freeport weekly. The fruit is processed in a newly built chiller, which the Port undertook and built 2 years ago at a cost of \$7 million. In addition to their import activities, they also export general cargo back weekly to ports in Costa Rica and Colombia. Since moving to Freeport 2 years ago, Turbana has increased their business 38 percent. This highly labor-intensive company accounts for 500+ jobs. Turbana and Isabella recently announced a significant expansion of their Freeport operations that will double their cargo throughput within the next 4 months.

American Rice Inc./Grupo SOS.—As a 20-year tenant of the Port, this company has the largest rice milling operation in the United States located on water. They are one of the largest suppliers to Iraq in the effort to help rebuild their economy. American Rice was recently acquired by the Spanish firm Grupo SOS, based in Madrid.

Grupo SOS recently announced an expansion project at the Port Freeport site totaling \$150 million dollars. Once all the new facilities are built, Port Freeport will be the distribution center for all North America, sending product out by ship, truck, and rail to Mexico, Canada, the Tropics, and South America as well as throughout the United States. With the expansion, there will be approximately 2,000 jobs associated with this operation.

Freeport LNG/ConocoPhillips.—Port Freeport was successful 4 years ago in attracting Freeport LNG to a site on Quintana Island, owned by the Port. This facility, the first new liquefied natural gas plant to be built in the United States in the last 25 years, will begin operations in the first quarter of 2008. The volume of natural gas imported in Phase I will be equal to 10 percent of the total gas production of the State of Texas and Phase II will equal over 20 percent of the entire State's production from this one terminal. The docks at the terminal are designed to handle the largest LNG ships being designed for the future, will require a wider ship channel which will need to be maintained for these larger ships. The investment in the LNG facility is \$1 billion. The importance of this facility cannot be understated. With gas prices spiking at \$13/bcf (from \$3) recently, local petrochemical plants had to shut down some production units, as an example, Dow Chemical Freeport purchases \$1 million of LNG daily to fire up their various production facilities.

In addition to the Port tenants listed above there are numerous U.S. and international chemical and crude processing facilities in the immediate area. Some of the larger international corporations utilizing the Freeport ship channel are as follows:

Dow Chemical.—A diversified chemical company that offers a broad range of products and services to customers in more than 175 countries, helping them to provide everything from fresh water, food and pharmaceuticals to paints, packaging and personal care products. Dow has annual sales of \$49 billion and employs 43,000 people worldwide, with 4,000 full time employees in the Texas operations and another 3,000 contract employees. Texas Operations in Freeport is Dow's largest integrated site where 44 percent of Dow's products are sold in the United States and more than 21 percent of Dow's products sold globally are manufactured. Dow's Freeport Marine Terminal and Operations (FMTO) uses the Freeport Harbor channel and handles the movement of 100 different Dow products at 15 billion pounds annually. Marine vessels transport 46 percent of Dow's volume through Dow docks on the Freeport channel.

ConocoPhillips owns and operates a 247,000 bpd refinery at Old Ocean, Texas, that relies heavily on marine operations for the delivery of crude oil and other feedstock supplies; and, to a lesser extent, for product shipments. In particular, ConocoPhillips utilizes both its own proprietary terminal and the Teppco crude oil terminal at Port Freeport. Maintaining and improving the Port Freeport channel is critical to overall refinery operations.

Seaway Crude Pipeline Company is a partnership between wholly owned subsidiaries of TEPPCO and ConocoPhillips. The pipeline transports crude oil from the Texas gulf coast to Cushing, OK, a crude distribution point for the central United States and a delivery point for the New York Mercantile Exchange (NYMEX). The Seaway system is a critical link in the crude oil supply chain for Central and Midwest refining centers. Seaway also provides marine terminaling and storage services for Texas gulf coast area refineries. TEPPCO is the operator of Seaway Crude Pipeline. The Freeport, TX, marine terminal is the origin point for the 30-inch diameter crude pipeline. Three large diameter lines carry crude oil from Freeport to the Jones Creek Tank Farm, which has 6 storage tanks capable of handling approximately 3.3 million barrels of crude. This private terminal also acts as the receiving terminal for crude delivered to the Bryan Mound Strategic Petroleum Reserve operated by the Department of Energy.

Schenectady Chemical, Shintech, Air Liquide, Nalco, Rhodia, Rhone-Poulenc, S F Sulfur Corp and Silica Products are other large international companies in the immediate area. All of these companies depend on, in some form or fashion the delivery or dispatch of product, crude or feedstock by vessel. There is well over \$100 billion in assets in the immediate area, assets that are in the ground, provide for 30,000 direct jobs supplying our country with everything from gasoline for our vehicles to baby diapers.

Recent Port improvements include the Velasco Terminal, which was launched last October as our first major container terminal. This facility, presently under construction will boast a berthing line of 2,400 linear feet with 90 acres of backland for development. Phase I, building Velasco terminal will cost \$35 million dollars and should be completed in 18 months. We have three, large international companies submitting proposals to act as terminal operators. Overall build out cost could go as high as \$200 million and is designed to handle as many as 700,000 containers.

DEFENSE SUPPORT OF OUR NATION

Port Freeport is a strategic port in times of National Defense of our Nation. It houses a critically important petroleum oil reserve—Bryan Mound. Its close proximity to State Highways 36 and 288 make it a convenient deployment port for Fort Hood. In these unusual times, it is important to note the importance of our ports in the defense of our Nation and to address the need to keep our Federal waterways open to deep-draft navigation.

COMMUNITY AND INDUSTRY SUPPORT

This proposed improvement project has wide community and industry support. The safer transit and volume increase capability is an appealing and exciting prospect for the users of Freeport Harbor and Stauffer Channel. The anticipated positive benefit to cost ratio that was indicated from the Corps of Engineers reconnaissance study firmly solidified the Federal interest.

WHAT WE NEED FROM THE SUBCOMMITTEE IN FISCAL YEAR 2011

The administration included no funding for PED for the widening and deepening project for Port Freeport; therefore, we need an add on of \$500,000 to initiate PED.

The administration did include \$3,538,000 in O&M for maintenance of Freeport Harbor; however, that amount falls short of the Corps capability. Maintenance dredging of Federal harbors is a Federal responsibility; therefore, we respectfully request the additional funding of \$7,374,000 to restore the harbor to its authorized depth. The Corps will need to continue to move this important project through the system on an optimum schedule and most cost-efficient timeframe for the Federal Government and the local sponsor. We respectfully request that the full amount of the Corps capability for PED and O&M be included in the House mark-up.

Not only is the widening and deepening project currently under consideration as a feasibility study by the Corps needed to ensure the continued growth of the port and surrounding industries, we need continued support from the Federal Government to insure our channel is maintained at its Federal authorized depth of 45 feet to assure our current customers that we will continue to be able to serve them.

PREPARED STATEMENT OF THE CHAMBERS COUNTY-CEDAR BAYOU NAVIGATION
DISTRICT, TEXAS

HISTORY AND BACKGROUND

The Rivers and Harbor Act of 1890 originally authorized navigation improvements to Cedar Bayou. The project was reauthorized in 1930 to provide a 10 foot deep and 100 foot wide channel from the Houston Ship Channel to a point on Cedar Bayou 11 miles above the mouth of the bayou. In 1931, a portion of the channel was constructed from the Houston Ship Channel to a point about 0.8 miles above the mouth of Cedar Bayou, approximately 3.5 miles in length. A study of the project in 1971 determined that an extension of the channel to project Mile 3 would have a favorable benefit to cost ratio. This portion of the channel was realigned from mile 0.1 to mile 0.8 and extended from mile 0.8 to Mile 3 in 1975. In October 1985, the portion of the original navigation project from project Mile 3 to 11 was deauthorized due to the lack of a local sponsor.

In 1989, the Corps of Engineers, Galveston District completed a Reconnaissance Report dated June 1989, which recommended a study for an improvement to a 12 foot by 125 foot channel from the Houston Ship Channel Mile 3 to Cedar Bayou Mile 11 at the State Highway 146 Bridge. Subsequently, at the completion of the feasibility report, the preferred plan recommendation was to construct a 10 foot by 100 foot channel. The feasibility report was approved by both the ASA of Civil Works for the Army Corps of Engineers and the Office of Management and Budget.

The Texas Legislature created the Chambers County-Cedar Bayou Navigation District in 1997 as an entity to improve the navigability of Cedar Bayou. The district was created to accomplish the purpose of section 59, Article XVI, of the Texas Constitution and has all the rights, powers, privileges and authority applicable to Districts created under chapters 60, 62, and 63 of the Water Code—Public Entity. The Chambers County-Cedar Bayou Navigation District then became the local sponsor for the Cedar Bayou Channel.

PROJECT DESCRIPTION AND REAUTHORIZATION

Cedar Bayou is a small coastal stream, which originates in Liberty County, Texas, and meanders through the urban area near the eastern portion of the city of Baytown, Texas, before entering Galveston Bay. The bayou forms the boundary between Harris County on the west and Chambers County on the east. The project was authorized in section 349 of the Water Resources Development Act 2000, which authorized a navigation improvement of 12 feet deep by 125 feet wide from mile 2.5 to mile 11 on Cedar Bayou. Corps studies have indicated that the preferred plan is to widen the channel to 100 feet and deepen it to 10 feet which is the current plan of action.

JUSTIFICATION AND INDUSTRY SUPPORT

First and foremost, the channel must be improved for safety. The channel is the home to a busy barge industry. The most cost-efficient and safe method of conveyance is barge transportation. Water transportation offers considerable cost savings compared to other freight modes (rail is nearly twice as costly and truck nearly four times higher). In addition, the movement of cargo by barge is environmentally friendly. Barges have enormous carrying capacity while consuming less energy, due to the fact that a large number of barges can move together in a single tow, controlled by only one power unit. The result takes a significant number of trucks off of Texas highways. The reduction of air emissions by the movement of cargo on barges is a significant factor as communities struggle with compliance with the

Clean Air Act. Several navigation-dependent industries and commercial enterprises have been established along the commercially navigable portions of Cedar Bayou. Several industries have docks at the mile markers that would be affected by this much-needed improvement. These industries include: Reliant Energy, Bayer Corporation, Koppel Steel, CEMEX, US Filter Recovery Services and Dorsett Brothers Concrete, to name a few.

PROJECT COSTS AND BENEFITS

Congress appropriated \$100,000 in fiscal year 2001 for the Corps of Engineers to conduct the feasibility study to determine the Federal interest in this improvement project. The study indicated a benefit to cost ratio of the project of 2.8 to 1. The estimated total cost of the project is \$16.8 million with a Federal share estimated at \$11.9 million and the non-Federal sponsor share of approximately \$4.9 million. Total annual benefits are estimated to be \$4.8 million, with a net benefit of \$3 million. Congress thus far has appropriated nearly \$1.7 million for this project.

It has also become an important project for the Port of Houston Authority—the Nation's busiest port in foreign tonnage. They hope to institute a container on barge facility as soon as this project is accomplished. We would appreciate the subcommittee's support of the required add of the \$100,000 to initiate construction of this important improvement project. The users of the channel deserve to have the benefits of a safer, most cost-effective Federal waterway.

CURRENT STATUS

In July 2006, the project feasibility report was accepted and approved by Assistant Secretary of the Army John P. Woodley and OMB as a viable, economically justified and environmentally accepted project. The project is ready for construction. The Federal Government has already invested nearly \$1 million for the studies to justify this project and the local sponsor has advanced the total local share. We are ready to begin construction.

PREPARED STATEMENT OF THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY;
STATE OF NEW JERSEY, DEPARTMENT OF TRANSPORTATION; STATE OF NEW YORK,
EMPIRE STATE DEVELOPMENT CORPORATION

Endorsed By: APM Terminals; Association of Bi-State Motor Carriers, Inc.; Board of Commissioners of Pilots of the State of New York; Business Council of New York State; Cashman Dredging Company; ConocoPhillips Bayway Refinery; CSX Corporation; Donjon Marine Co., Inc.; Environmental Defense Fund; Hudson County Chamber of Commerce; Great Lakes Dredge and Dock Company; Greater Maritime Port Council of New York/New Jersey and Vicinity; I.L.A. Local 1235; International Union of Operating Engineers Local 25 Marine Division; Maher Terminals; Manhattan Chamber of Commerce; Maritime Association of the Port of NY/NJ; Marine Engineers Beneficial Association; Maritime Trades Department AFL-CIO; Matrix Development Group; Nation'sPort; NJ Sandy Hook Pilots Association; New Jersey Alliance for Action; New Jersey State AFL-CIO; New York Sandy Hook Pilots; New York Shipping Association; New York-New Jersey Port Promotion Association; New-ark Regional Business Partnership; Norfolk Dredging Company; Norfolk Southern Corporation; Seafarers International Union; Weeks Marine Inc.

This subcommittee has consistently supported the Nation's navigation system, including the Port of New York and New Jersey. We thank you for your continued support. Now more than ever, we are in need of your assistance as we near the end of the construction of the New York and New Jersey Harbor Deepening Project (HDP), but face a \$33 million reduction from last year's funding level. The HDP has received strong financial support since 2004, which has enabled the Federal Government and us to improve the infrastructure required to handle cargo growth in our region and the Nation. In order to keep this top priority project on schedule, we respectfully ask that the President's request for the NY & NJ Harbor Deepening Project be augmented to \$80,000,000, which is less than the level that was appropriated this fiscal year. We also respectfully request added funds totaling \$5,000,000 to construct the vital Liberty State Park wetlands restoration project, \$1,500,000 to move forward on other essential Hudson-Raritan Estuary (HRE) restoration projects, and \$50,838,000 to address critically important operations and maintenance needs.

We understand the fiscal constraints facing the subcommittee and the Nation, but would like to emphasize that the Federal investment in the Port has yielded great returns. New York and New Jersey marine terminals handled over 4 million TEU's

in 2009. This freight moved throughout the region and to most States in the continental United States accounting for approximately 13 percent of the Nation's containerized imports and exports and 22 percent of the Nation's import of refined petroleum products such as heating oil. The Port supports more than 269,000 on and off-terminal jobs locally and nation-wide, and the NY/NJ port industry contributed \$5.8 billion in local, State and Federal tax revenues. The Port continues to serve as a critical economic engine in these trying times of an economic downturn.

The Port and its partners are mindful of the need to balance commerce with protection of the environment. The Port Authority has dedicated funds to expand its rail capacity in New York and New Jersey in order to reduce truck congestion and associated air emissions. The funds also financed the acquisition of environmentally sensitive land for preservation and studies to identify and prevent sources of contamination from entering the harbor estuary. The Port Authority has also spent over \$20 million for emission-offset programs associated with the HDP. In 2010 we will have reduced 796 tons of NO_x emissions annually in the Harbor due to these efforts; by 2013, we will have reduced NO_x emissions by over 1,100 tons per year. These improvements and emissions reductions are a legacy to this region; their benefits continuing long after the HDP is completed. Over 40 million cubic yards of dredged material will be removed in association with the HDP. To date 100 percent of the material dredged has been beneficially reused within the region to improve the Historic Area Remediation Site, enhance artificial reefs within the coastal waters of New York and New Jersey, and support upland activities such as landfill closures and brownfield remediation projects. Additionally, terminal operators have voluntarily installed electric cranes, switched to ultra-low sulfur diesel and replaced cargo-handling equipment with cleaner models—a strong signal of private sector commitment toward greening the Port. In addition the Port Authority, together with its sister agencies and port partners, has developed and is implementing a Clean Air Strategy for the Port of New York and New Jersey. The HDP, including our partnership with the Corps, is the centerpiece of a commitment to make this important American gateway internationally competitive while restoring the harbor estuary and protecting our environment. We invite all members of the subcommittee and staff to visit the Port to learn more about its role in the environment and the U.S. transportation system. Below are our comments on the fiscal year 2011 budget request. We respectfully request that the subcommittee appropriate additional funds for the specific projects as discussed below.

Construction	President's Fiscal Year 2011 Budget	Port Request
New York and New Jersey Harbor	\$57,000,000	\$80,000,000
Liberty State Park .....	.....	5,000,000
TOTAL	57,000,000	85,000,000

New York and New Jersey Harbor.—This project was authorized by section 101(a)(2) of WRDA 2000 (Public Law 106-541). We respectfully request that the President's request for the NY and NJ Harbor Deepening Program be augmented to \$80,000,000, which while higher than the budget request would be 12 percent lower than the appropriated level for the current year. The continuing NY and NJ Harbor Deepening Project will improve transportation efficiency and benefit the national markets served by this port. In order to complete the 50-foot deepening of the pathways to the container-handling facilities in the Harbor by fiscal year 2013 and reap the full benefits of the Federal Government's investment, a significant number of contracts must be awarded over the next 2 years. Project slippage will have serious negative impacts on maritime commerce and the regional and national economy. The President's budget allows for the construction of this project to continue, but does jeopardize the timeline at a critical juncture. The project currently stands near the 50 percent completion mark. With only 3 years remaining in the schedule, reduced funding at this time hampers construction efficiencies, delays the benefits of sections already constructed, and subjects the project to possible further delays and increased cost as the price of labor and construction inevitably rises in the next years. Any hindrance to the timely completion of this project risks the possible delay of the realization of first year economic benefits to the Nation in the range of \$140 million. In addition, a delay in funding could mean that this nationally important project would not be completed by the opening of the Panama Canal's third set of locks. For these reasons, we urge adoption of our \$80,000,000 funding recommendation, which is a continuation of the funding levels the subcommittee has approved in previous fiscal years. This approach is consistent with the stated goal of the ad-

ministration of placing priority and resources on the completion of Corps projects already underway.

Liberty State Park.—We also request \$5,000,000 to execute the Project Partnership Agreement with the State of New Jersey and construct the critical wetlands restoration project within Liberty State Park. The project was authorized for construction in WRDA 2007. This project will both restore critical habitat within the estuary and also provide significant public access and education opportunities.

Continuing Authority Program (CAP).—We request that CAP sections 1135 and 204 are funded to fund the following ongoing projects within the Jamaica Bay complex: Plumb Island, NY (\$500,000) and Spring Creek, NY (\$50,000).

Surveys (Studies)	President's Fiscal Year 2011 Budget	Port Request
HRE, Hackensack-Meadowlands, NJ	\$200,000	\$250,000
HRE, Lower Passaic River, NJ	200,000	250,000
HRE New York & New Jersey	200,000	1,000,000
TOTAL	600,000	1,500,000

HRE-Hackensack Meadowlands.—We respectfully request an increase in funding of an additional \$50,000 for a total of \$250,000 to continue design work. The area's wildlife habitat preserves are threatened by dwindling open marshes. In April 2003, the Corps executed the FCSA with the NJ Meadowlands Commission, and initiated the feasibility study.

HRE-Lower Passaic.—An increase in funding by \$50,000 for a total of \$250,000 is needed for the HRE-Lower Passaic River to complete a Draft Comprehensive Restoration Plan for the entire lower 17-mile watershed. The plan is critical component of the integrated Remedial Investigation/Feasibility Study underway with EPA as a pilot project of the joint Corps-EPA Urban Rivers Restoration Initiative. Many changes have occurred over the last year and it is important that the positive momentum gained not be lost on this critical project.

HRE (overall), NY and NJ.—There is a critical need to increase funding to \$1,000,000 to allow the Corps to complete the Comprehensive Restoration Plan (CRP) that will outline the unified vision of a restored estuary based on specific science based and stakeholder endorsed ecosystem targets. It will also continue the feasibility study and programmatic Environmental Impact Statement, which is needed to implement the CRP. This study, as well as the Hackensack Meadowlands and Lower Passaic River studies, were authorized by House Resolution dated April 25, 1999 and are critical components to achieving the common stakeholder vision of a World Class Harbor estuary that recognizes ecological restoration as being of equal importance with economic development. This project directly aligns with other administration initiatives and focus for the Corps in fiscal year 2011.

Operation and Maintenance	President's Fiscal Year 2011 Budget	Port Request
Newark Bay, Hackensack and Passaic Rivers, NJ	\$100,000	\$10,200,000
Project Condition Surveys, NJ	1,506,000	1,953,000
Raritan River to Arthur Kill Cut-off, NJ	100,000	1,450,000
Raritan River, NJ	80,000	120,000
Buttermilk Channel, NY	8,600,000	10,000,000
East River, NY	2,800,000	3,350,000
East Rockaway Inlet, NY	200,000	1,750,000
Eastchester Creek, NY	150,000	150,000
Flushing Bay and Creek, NY	100,000	100,000
Hudson River Channel, NY	100,000	200,000
Jamaica Bay, NY	120,000	120,000
New York and New Jersey Channels, NY	6,150,000	6,150,000
New York Harbor, NY	3,796,000	3,998,000
Portchester Harbor, NY	60,000	60,000
Project Condition Surveys, NY	1,928,000	2,092,000
Westchester Creek, NY	100,000	100,000
New York Harbor, NY and NJ (Drift Removal)	7,200,000	7,900,000
New York Harbor, NY and NJ (Prevent Obstructive Deposits)	1,045,000	1,145,000
TOTAL	34,135,000	50,838,000

Operation & Maintenance.—Maintenance projects are critical to the commerce, navigation and security of this National Priority port system, its channels and the Nation. Billions of public and private dollars are continuing to be spent to deepen the Port's channels and improve landside infrastructure. The considerable investment in deepening the network of channels is devalued if the system is not adequately maintained, especially in one of the most highly utilized ports in the country. Additionally, the risk of groundings will increase. The new budget continues the unfortunate pattern of past budgets that enable only partial channel maintenance, leaving significant areas and in some cases whole shipping lanes at inefficient and potentially unsafe depths. The Port is the Nation's busiest petroleum port, and the Arthur Kill (under NY and NJ Channels) is critical to that trade, which serves the greater NY/NJ Metropolitan area and much of the Northeast. Channel maintenance in this National Strategic Port is needed to support the industry and military. Maintenance also protects and perpetuates the Federal infrastructure investment. We identified several critical projects with pressing channel safety concerns and it is important to state for the record that this part of the fiscal year 2011 budget is insufficient to meet the practical needs of commerce. The irony is that the budget proposes using only around 50 percent of the estimated Harbor Maintenance Trust Fund receipts for the fiscal year. As such the Harbor Maintenance Trust Fund is fully capable of covering the full cost of dredging in our port and a good many others. To provide additional perspective, a January 2010 report from the Congressional Research Service (7-5700) notes that the NY/NJ port is a "large net generator" of Harbor Maintenance Tax revenue. It also illustrates how the NY/NJ port is one of most efficient ports when measured in HMTF maintenance expenditures per ton of cargo. We respectfully request the budget be increased as shown in the above list.

Conclusion.—The Port of New York and New Jersey continues to be a major international gateway for the Nation and a significant producer of Harbor Maintenance Tax revenue to support the Nation's port system. Furthermore we would be remiss if we did not highlight the importance of continuing contracts as a valuable tool in managing the complexities of channel deepening and maintenance. National projects, like the NY and NJ Harbor Deepening Project, are better served with 2-year continuing contracts supported by a 5 and 10 year Corps priority project schedule. The Corps' Civil Works Program, coupled with public and private sector investments, has served the Nation's economic and security interests well for the better part of two centuries. We are proud of our part in that history. We commit to continuing our productive partnership with the Federal Government and to ensuring that continued development and use of the Port and its supporting infrastructure is balanced between commerce and the environment.

PREPARED STATEMENT OF THE CITY OF MARICOPA (ARIZONA)

Chairman Dorgan, Ranking Member Bennett, and distinguished members of the subcommittee, thank you for allowing me to testify in support of \$150,000 for the city of Maricopa, Arizona for a Flood Plain Management Services (FPMS) study under General Investigations for the Army Corps of Engineers in the fiscal year 2011 Energy and Water Development bill.

Maricopa is a small but thriving community 35 miles south of Phoenix. Incorporated in 2003 with a population of approximately 1,000 people, Maricopa is now a burgeoning community of more than 40,000 and growing at the rate of approximately 200 people per month. Maricopa is located in Pinal County, which is one of the fastest growing regions in one of the fastest growing States in the Nation. With this newfound growth has brought increased risk of death and the loss of public and private property due to flooding of the Santa Cruz River that splits the city. Mitigating this potential flood hazard is critical to this area's growth and prosperity. A major flood today would devastate homes, businesses, schools, infrastructure and more. It is only a matter of time before another devastating flood hits this area. Flood control improvements are urgent and necessary to protect the public health and safety.

The Santa Cruz River Basin consists of 8,200 square miles in southern Arizona and 400 square miles in Sonora, Mexico. The Basin has a long history of damaging floods. Damages included a broad range of categories, including agricultural, commercial and residential structures, utility lines, and transportation facilities. These flooding problems have been studied repeatedly by Federal, State, and local agencies, but no comprehensive solution has been implemented due to a lack of economic viability.

The Bureau of Reclamation had previously carried out appraisal investigations of the Santa Cruz River in 1965 when the city and areas within the basin were largely

agricultural. It became apparent at that time that the municipal and industrial water-supply needs of the Santa Cruz River Basin were of far greater magnitude and urgency than had been previously estimated.

In 1976, Congress, under the authority of the Flood Control Act of 1938 funded a Corps of Engineers/Bureau of Reclamation study of the Lower Santa Cruz River from the Red Rock area to the river's confluence with the Gila River. The Corps was tasked with evaluating the flood control problems, and the Bureau of Reclamation was tasked with evaluating the development potential of water resources. The results of this study, released in August 1983 found no economically justified solution. Benefits to cost ratios (BCR) ranged from 0.3 to 0.7 for three different alternatives for diversion of floodwaters from the Greene's Canal area to the Tat Momolikot Dam reservoir. In October 1983, a flood along the Santa Cruz River caused over \$45 million (1994 dollars) in damages, including extensive damage to many of the channel and dike improvements constructed by the agricultural flood control districts in the area. A similar devastating flood occurred in 1993. At this time, the city of Maricopa had very little residential or commercial infrastructure and less than 1,000 residents.

After the floods, the Corps reevaluated the alternatives in their study and were able to develop a BCR of 1.03. Since the 1983 and 1993 floods, construction of the Central Arizona Project lateral canals, and associated irrigation infrastructure, have added additional potential damages from future events due to changes in the hydraulic characteristics of the flood prone areas. In addition, extreme land subsidence is extensive over portions of the Santa Cruz River Basin.

In June 1989, Pinal County requested a flood control study of the Lower Santa Cruz River from the Corps of Engineers. The Corps released the Lower Santa Cruz River Feasibility Analysis Summary Report in September 1994. This report developed several alternative plans and found that the best alternative was still diversion to the Tat Momolikot Dam with a BCR of 1.05. The 1994 report concluded that additional engineering work was needed due to geotechnical issues in the area and also the altered hydraulic characteristics of the area due to the Central Arizona Project and irrigation district infrastructure. The study was terminated without a recommendation.

With the recent influx of residential growth into Maricopa and most of Pinal County since 2001, the flood prone areas of the Lower Santa Cruz River had become candidates for development. Several large master planned residential projects have been proposed along the Lower Santa Cruz River from the Red Rock area to the city of Maricopa, which has, at this point, the largest and most expansive development. These projects have been planned in Maricopa, Casa Grande, and many other flood prone locations in Pinal County's Santa Cruz River Basin. The loss of life and property has increased exponentially since the Corps conducted its initial studies. The time to act is now.

Maricopa is one of the fastest growing communities in Arizona. By 2020, it is estimated to have nearly 200,000 residents. Similarly, other cities, such as Eloy and Casa Grande are expected to see similar growth of their communities. Larger communities will translate into larger damages and loss of life in the event of a catastrophic flood event. An FPMS study would help us begin to address this problem before its too late.

It is important to note that a large stakeholder group is being formed to work on a collaborative solution for this growing problem. Stakeholders include the city of Maricopa, the Ak-Chin Indian Community, the Gila River Indian Community, Pinal County, numerous irrigation and flood control districts, and the University of Arizona. Realizing the importance of this endeavor, the city of Maricopa has committed \$9 million over the next 3 years to begin this important project.

Therefore, I respectfully request that the subcommittee includes \$150,000 for the city of Maricopa, Arizona for a Flood Plain Management Services (FPMS) study under General Investigations for the Army Corps of Engineers in the fiscal year 2011 Energy and Water Development bill.

Thank you for the opportunity to testify, as well as your time and attention to this important matter.

PREPARED STATEMENT OF THE ASSOCIATION OF STATE FLOODPLAIN MANAGERS

The Association of State Floodplain Managers (ASFPM) is submitting comments on three items in the budget request: under Investigations—Planning Assistance to States and Flood Plain Management Services and under Operation and Maintenance—National (Levee) Flood Inventory.

ASFPM and its 29 Chapters represent over 14,000 State and local officials and other professionals who are engaged in all aspects of managing and mitigating flood risk to address the loss of life and property from natural hazards. These aspects include land management, hazard mitigation, mapping, engineering, planning, building codes and permits, community development, hydrology, forecasting, emergency response, water resources and insurance. Most of our members work with the Nation's 21,000 flood prone communities to reduce losses from all flood related hazards.

ASFPM strongly believes that the USACE can contribute significantly to better informed flood hazard reduction decisions in our Nation's communities through providing technical advice and assistance. As the Corps moves toward helping States and local governments with a comprehensive approach to flood risk management, the Flood Plain Management Services (FPMS) and Planning Assistance to States (PAS) programs are essential. For many years, these valuable programs have been funded at about one-half of their authorized levels. The budget request for fiscal year 2011 would continue that level of funding. The request for FPMS is \$8 million. The request for PAS is \$7 million. ASFPM recommends funding both programs at a significantly higher level and at their fully authorized amounts if possible.

We support the budget request of \$15 million for the National (Levee) Flood Inventory. We urge that the inventory proceed expeditiously and that it include not only Corps built, owned and maintained levees, but all levees. Information on the number and location of levees in the Nation and a general assessment of their condition is critical as the Congress and Federal Government move to develop a national levee safety program. Because of its importance to addressing the hazards to public safety and property associated with levee failure or overtopping, it is important that the levee inventory proceed with deliberate speed.

The Association of State Floodplain Managers appreciates this opportunity to share our views on these important Army Corps programs.

PREPARED STATEMENT OF THE STOCKTON PORT DISTRICT, CA

The Port of Stockton ("Port") appreciates the opportunity to submit this testimony for the record in support of the fiscal year 2011 appropriations for the U.S. Army Corps of Engineers Civil Works Operations and Maintenance and Construction General Programs. The funding amounts are detailed in the paragraphs below.

Stockton has an unemployment rate of 21.9 percent (Source: CA Economic Development Dept., Jan. 2010). San Joaquin County has an unemployment rate of 18.4 percent. With the highest home foreclosure rate in the Nation, this region continues to suffer the hardest impacts of the national and global economic recession.

The Port of Stockton is widely viewed as one of the primary economic engines for the recovery of this distressed region. The positive economic outlook for the Port includes introduction of new container facilities at the Port in year 2011, thanks to the DOT TIGER grant for marine highways. Significant developments are also expected for Rough and Ready Island. The Port has been, and will continue, to focus on jobs creation at a family wage level for this region.

The Port of Stockton's recovery, and the regional recovery, is dependent on adequate funding of the four projects shown below in the Army Corps of Engineers civil works budget.

The San Joaquin River—Stockton Channel is our highest priority appropriations request in the Corps O&M budget. Federal responsibilities include annual maintenance dredging of the Federal channel and maintaining existing riverbank protection. This project is consistently under funded so that the authorized 35-foot ship channel has been blocked at depths of 32–33 foot feet. These blockages, often last 6 months or more, have denied a stable 35-foot ship channel for much of the past 5 years. Past O&M appropriations have been primarily in the \$2.6 million to \$3.1 million range, insufficient for the State's largest inland port and fourth busiest California port.

An amount of \$9.8 million is requested for the San Joaquin River—Stockton Channel project in fiscal year 2011 to adequately maintain the ship channel at a safe year round Federal depth and satisfy additional State water quality requirements for environmental sampling, testing, and disposal of maintenance dredged material.

The San Francisco Bay to Stockton (John F. Baldwin and Stockton Channels) is our second highest priority request in the Corps Construction General budget. This \$141 million project would deepen the Stockton ship channel to 40-feet. The State Transportation Commission has designated this project for a \$17.5 million construction grant; construction must begin in year 2012. Last year, our appropriations request for \$2 million was zeroed out of the fiscal year 2010 budget for reasons un-

known to us. With a zero appropriation for the project, the Port must recapture the schedule, including possible reprogramming of funds.

Two million dollars in Construction General funding is requested for the San Francisco Bay to Stockton project in fiscal year 2011. We have recently added strong cost sharing partners with the Western States Petroleum Association, along with our long time partner, Contra Costa County.

The Rough and Ready Island Storm Water Drainage Project is our third priority request in the Corps Construction General budget. The current storm water system on Rough and Ready Island is obsolete and must be replaced. The EPA is demanding a replacement. Based on WRDA 2007, Public Law 110-114, section 5158, \$3 million is authorized for this storm water system, which includes drainage detention and lift facility. The project will also minimize environmental problems, increase flood protection and create more usable land for economic growth.

An amount of \$925,000 is requested in the Corps fiscal year 2011 Construction General budget for the Rough and Ready Island, Storm Water Drainage Project. This project is authorized in accordance with Public Law 102-580, 1992, section 219 Environmental Infrastructure and subsequent Water Resources Development Acts.

The Pinole Shoal, CA Management Study (Delta Long Term Management Strategy) is an ongoing study that we support with Contra Costa County and many regulatory resources agencies. Authorized in Public Law 108-447, page 905 of Conference Report (Consolidated Appropriations Act,) this study has been funded since fiscal year 2005. Funding would be used to develop and approve a joint agency permit and general regional water quality control board order for dredging and beneficial reuse of dredged material; implement a Delta Dredging and Reuse Management Team with a MOU, charter, and operating principles; develop regional disposal and reuse of dredged sediment alternatives; initiate a programmatic biological assessment, and conduct a pilot project. Fiscal year 2011 Federal funds would be used as follows: salaries \$300,000, A&E and professional service contracts \$2,200,000.

An amount of \$2.5 million is requested in the Corps fiscal year 2011 O&M budget for the Pinole Shoal, CA Management Study.

Thank you for your consideration.

PREPARED STATEMENT OF THE RED RIVER VALLEY ASSOCIATION

Mr. Chairman and members of the subcommittee, I am Wayne Dowd, President, and pleased to represent the Red River Valley Association, 629 Spring St., Shreveport, Louisiana. Our organization was founded in 1925 with the express purpose of uniting the citizens of Arkansas, Louisiana, Oklahoma and Texas to develop the land and water resources of the Red River Basin.

The resolutions contained herein were adopted by the Association during its 85th Annual Meeting in Shreveport, Louisiana, on February 18, 2010 and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association. A summary of the civil works projects and requested funding is included in this testimony.

The President's fiscal year 2011 budget included \$4.9 billion for the civil works programs. This is a drastic 10 percent cut from what Congress appropriated in fiscal year 2010. The administration fails to recognize the Corps' critical role as stewards of our Nation's water resources, and the vital importance of our water resources infrastructure to our economic and environmental well-being. The problem is also how the administration distributes funds. A few projects received the full "Corps Capability" to the detriment of many projects that receive no funding. The \$4.9 billion level does not come close to the real needs of our Nation. A more realistic funding level to meet the existing needs of the civil works program is \$6 billion for fiscal year 2011. The traditional civil works programs remain at the low, unacceptable level as in past years. These projects are the backbone to our Nation's infrastructure for waterways, flood prevention, water supply, recreation and ecosystem restoration. We remind you that civil works projects are a true "jobs program" in that up to 85 percent of project funding is contracted to the private sector; 100 percent of the construction, as well as much of the architect and engineering work. Not only do these projects provide jobs, but provide economic development opportunities for our communities to grow and prosper, creating permanent jobs.

Congress did appropriate funding for the civil works program through the American Recovery and Reinvestment Act of 2009. The majority of those funds went toward backlog maintenance (O&M) at completed Corps projects, no construction funds were received in the Red River Valley. Many critical maintenance items were addressed; however, that should not be a reason to reduce the Corps' fiscal year

2011 budget. We have the opportunity to truly reduce our maintenance backlog, but a reduced Corps budget will allow those issues to increase and hinder our ability to catch up.

We want to point out that we appreciate the funding Congress enacted in fiscal year 2010 and that an appropriation bill was enacted in November 2009. We encourage Congress to increase the “water” share of the total Energy and Water bill closer to the \$6 billion Corps capability.

We have a serious issue for the J. Bennett Johnston Waterway O&M in the President’s budget. The administration allocated \$7,745,000 for fiscal year 2011, \$3,733,000 less than appropriated in fiscal year 2010 (\$11,478,000)! This drastic reduction will directly impact the ability to conduct maintenance dredging and the authorized 9 foot channel will not be maintained. It is difficult to understand why the administration would fund the O&M at the \$11 million range for 5 years and suddenly make a drastic reduction that will have such a negative impact on a Waterway that has yearly increased its tonnage. If the required funding level of at least \$11 million is not appropriated the Waterway may actually shut down to all traffic and industry will see the Waterway as unreliable and choose alternative modes of transportation, impacting ports and jobs.

A national issue that must be addressed is levee certification. FEMA has mandated that all levee systems go through a certification process. If a levee district does not meet their designated deadline their levee will be taken off the flood plain maps. This will greatly increase the current flood insurance paid by landowners and discourage economic development. The requirements of the engineering analysis for levee certification are cost prohibitive by most all districts. Considering that many of these levees were constructed over 80 years ago construction criteria then do not meet current methods and procedures. Additionally, levees have deteriorated and weathered over time. Levee districts can not be expected to absorb the expense to upgrade their levees to meet current criteria. There must be a national program to address this issue. It is too large an expense to be absorbed in the civil works underfunded budget. We recommend Congress address this issue and develop a program that would be funded through FEMA and executed by the Corps of Engineers and cost shared with levee districts.

We have great concerns over the issue of “earmarks”. Civil Works projects are not earmarks. Civil Works projects go through a process; reconnaissance study, feasibility study, benefit to cost ratio test, EIS, peer review, review by agencies, public review and comment, final Chief of Engineer approval, authorization by all of Congress in a WRDA bill and signed by the President. WRDA 2007 added an independent review of major projects. No other Federal program goes through such a rigorous approval process. Each justified project “stands alone”, are proven to be of national interest and should be funded by project. For most projects there is local sponsor cost sharing during the feasibility study, construction and for O&M. Those who have contributed, in most cases—millions of dollars—to the process, must have the ability to have a say for their projects to get funded. That voice is through their Congressional delegation. We believe that earmarks are not in the national interest, but it does not pertain to the civil works program. For civil works it is an issue of priority of projects to be funded and who will determine that, OMB or Congress. We hope Congress keeps their responsibility to set civil works priorities and to determine how its citizen’s tax dollars are spent.

The Inland Waterways Trust Fund (IWTF) is inadequately funded by the existing fuel tax rate. There is no doubt that something must be done to increase the revenue in the fund. The needs of the IWTF should be analyzed and determine what increase to the existing fuel tax would maintain the necessary income flow to keep projects funded from the Inland Waterway Trust Fund. The final proposal must be fair to tributary waterways and be applied equally to all industries using the waterways.

I would now like to comment on some of our specific requests for the future economic well being of the citizens residing in the four State Red River Basin regions.

Navigation.—The J. Bennett Johnston Waterway is living up to the expectations of the benefits projected. We are extremely proud of our public ports, municipalities and State agencies that have created this success. This upward “trend” in usage will continue as new industries commence operations. A major power company, CLECO, has invested \$1 billion in its Rodemacher Plant near Boyce, Louisiana, on the lower Red River and has started moving over 3 million tons of “petroleum coke” and limestone, by barge. This project is a reality and there are many more industries considering using our Waterway and locating at the ports.

You are reminded that the Waterway is not complete, 12 percent remains to be constructed, \$246 million. We appreciate Congress’ appropriation level in fiscal year 2010 of \$6,613,000. There is a capability for \$20 million of work, but we realistically

request \$12 million to keep the project moving toward completion, "J. Bennett Johnston Waterway (CG)".

Now that the J. Bennett Johnston Waterway is reliable year round we must address efficiency. Presently a 9-foot draft is authorized for the J. Bennett Johnston Waterway. All waterways below Cairo, Illinois are authorized at 12-feet, to include the Mississippi River, Atchafalaya River, Arkansas River and Gulf Intracoastal Waterway. A 12-foot channel would allow an additional one-third capacity, per barge, which will greatly increase the efficiency of our Waterway and further reduce transportation rates. This one action would have the greatest, positive impact to reduce rates and increase competition, bringing more industries to use waterborne transportation. We request a 1-year reconnaissance study be funded to evaluate this proposal, at a cost of \$100,000. Fact: Approximately 95 percent is already at 12-foot year round.

The feasibility study to continue navigation from Shreveport-Bossier City, Louisiana, into the State of Arkansas will be completed in CY 2012. This region of SW Arkansas and NE Texas continues to suffer major unemployment and this navigation project, although not the total solution, it will help revitalize the economy. Due to the time lapsed in the study the "freight rates" calculated a number of years ago they must be re-evaluated this year. We request funding of \$50,000 to conduct the re-evaluation of freight rates, "Navigation into SW Arkansas Study".

Flood Prevention.—What will happen when we ignore our levee systems? We know the Red River levees in Arkansas do not meet Federal standards, which is why we have the authorized project, "Red River Below Denison Dam, TX, AR & LA". Now is the time to bring these levees up to standards, before a major flood event.

We continue to consider flood control a major objective and request you continue funding the levee rehabilitation projects ongoing in Arkansas. Five of 11 levee sections have been completed and brought to Federal standards. The Red River Levee District (AR) is prepared to provide lands, easements and rights of way for the next major rehabilitation of the Lafayette County levees.

The levees in Louisiana have been incorporated into the Federal system; however, they do not meet current safety standards. These levees do not have a gravel surface roadway, threatening their integrity during times of flooding. It is essential for personnel to traverse the levees during a flood to inspect them for problems. Without the gravel surface the vehicles will cause rutting, which can create conditions for the levees to fail. A gravel surface will insure inspection personnel can check the levees during the saturated conditions of a flood.

Appropriations of \$12 million will construct one more levee section in Lafayette County, Arkansas and continue the rock surfacing of levees in Louisiana, "Red River Below Denison Dam, AR & LA".

Bank Stabilization.—One of the most important, continuing programs, on the Red River is bank stabilization in Arkansas and North Louisiana. We must stop the loss of valuable farmland that erodes down the river and interferes with the navigation channel. In addition to the loss of farmland is the threat to public utilities such as roads, electric power lines and bridges; as well as increased dredging cost in the navigable waterway in Louisiana. These bank stabilization projects are compatible with subsequent navigation into Arkansas and we urge that they be continued in those locations designated by the Corps of Engineers to be the areas of highest priority. We appreciated the congressional funding in past fiscal years and request you fund this project at a level of \$11.3 million in fiscal year 2011, "Red River Emergency Bank Protection".

Water Quality.—The Assistant Secretary of the Army (Civil Works), in October 1998, agreed to support a re-evaluation of the Wichita River Basin tributary of the project. The re-evaluation report was completed and the Director of Civil Works signed the Environmental Record of Decision. The plan was found to be economically justified. Then the ASA (CW) directed that construction would not proceed until a local sponsor was found to assume 100 percent of the O&M for the project. The 2007 WRDA bill included language that clarified that all aspects of this project will be at full Federal expense, to include O&M.

Over the past years there has been a renewed interest by the Lugart-Altus Irrigation District to evaluate construction of Area VI, of the Chloride Control Project, in Oklahoma. They have obtained the support of many State and Federal legislators, as well as the Oklahoma Governor in support of a re-evaluation report.

Total request for the "Chloride Control Project": \$8,300,000 for the Texas and Oklahoma areas.

Studies.—We have a number of General Investigation (GI) studies that have been funded and have local sponsors prepared to cost share feasibility studies. Some of those important studies include: Bossier Parish Flood Control Study, LA—\$250,000; Cross Lake Water Supply Study, LA—\$100,000; SE Oklahoma Water Resource

Study, OK—\$500,000; SW Arkansas Study, AR—\$50,000; Washita River Basin, OK—\$500,000 and Wichita River Basin, TX—\$100,000. These studies are important to have projects ready for future construction.

Operation & Maintenance.—Full O&M capability levels are not only important for our Waterway project but for all our Corps projects and flood control lakes. The backlog of critical maintenance only becomes worse and more expensive with time. We request that the Corps O&M projects be funded at the expressed, full Corps capability.

Thank you for the opportunity to present this testimony and project details of the Red River Valley Association on behalf of the industries, organizations, municipalities and citizens we represent throughout the four State Red River Valley region. The Civil Works program directly relates to national security by investing in economic infrastructure. If waterways are closed companies will not relocate to other parts of the country—they will move over seas. If we do not invest now there will be a negative impact on our ability to compete in the world market threatening our national security.

Grant Disclosure.—The Red River Valley Association has not received any Federal grant, sub-grant or contract during the current fiscal year or either of the two previous fiscal years.

RED RIVER VALLEY ASSOCIATION FISCAL YEAR 2011 APPROPRIATIONS CIVIL WORKS

[In thousands of dollars]

	Fiscal Year 2010 Approp	RRVA Fiscal Year 2011 Request	President Fiscal Year 2011 Budget	Local Sponsor Requirements
Studies (GI)				
Navigation into SW Arkansas: Feasibility		\$50		(ARRC)
Red River Waterway, LA—12 foot Channel, Recon		100		(RRWC)
Bossier Parish, LA	\$278	250		(Bossier Levee)
Cross Lake, LA Water Supply Supplement	90	50		(Shreveport)
SE Oklahoma Water Resource Study: Feasibility	233	500		(OWRB)
SW Arkansas Ecosystem Restoration: Recon Study	170	47		(ANRC/AR Game & Fish)
Cypress Valley Watershed, TX	90	175		(NETWD)
Sulphur River Basin, TX		1,000		(Sulphur Auth)
Washita River Basin, OK	171	500		(L)
Wichita River Basin above Lake Kemp, TX: Recon		100		(L)
Red River Above Denison Dam, TX & OK: Recon		100		(L)
Red River Waterway, Index, AR to Denison Dam		44		(?)
Mountain Fork River Watershed, OK & AR, Recon				(?)
Walnut Bayou, Little River, AR		100		(ANRC)
Little River County/Ogden Levee, AR, Recon		100		(ANRC)
Red River Waterway, Index to Denison, Bendway Weir				(?)
Construction General (CG)				
Red River Waterway: J. B. Johnston Waterway, LA	6,613	20,000	\$1,500	(RRWC)
Chloride Control Project, TX & OK Texas-7,500/Oklahoma-800	1,332	8,300		N/A
Red River Below Denison Dam; AR & LA	2,035	12,000		(Levee Districts)
Bowie County Levee, TX				
Red River Emergency Bank Protection	1,986	11,300		(Levee Dist.)
Big Cypress Valley Watershed, TX: Section 1135	1,450			(Jefferson)
Palo Duro Creek, Canyon, TX: Section 205		90		(Canyon, TX)
Millwood, Grassy Lake, AR: Section 1135	181	100		(ANRC)
McKinney Bayou, AR, PED				(?)
Miller County Levee, AR, Section 1135				(Miller Levee)
Operation and Maintenance (O&M)				
J. Bennett Johnston Waterway, LA	11,478	23,864	7,745	
Lake Kemp, TX—Total Need	311	817	467	
Basic Annual O&M		214		
Reallocation Study		350		
Service Bridge & Gate Repair		253		
Lake Texoma, TX & OK—Total Need	8,740	31,617	10,057	
Basic Annual O&M		7,000		
Shoreline Management Plan	1,158			

RED RIVER VALLEY ASSOCIATION FISCAL YEAR 2011 APPROPRIATIONS CIVIL WORKS—Continued

[In thousands of dollars]

	Fiscal Year 2010 Approp	RRVA Fiscal Year 2011 Request	President Fiscal Year 2011 Budget	Local Sponsor Requirements
Backlog Maintenance		24,617		
Chloride Control Project, TX & OK	1,481	2,025	1,439	
Old River Lock, LA (MR&T)	9,854	12,755	9,255	

NOTE.—Local Sponsor Column—Sponsor indicated in (); (?) indicates No Sponsor identified and need one to continue (L) indicates Sponsor not required now but need one for feasibility; N/A—No Sponsor required.

PREPARED STATEMENT OF THE MISSOURI RIVER ASSOCIATION OF STATES AND TRIBES

Dear Chairman Dorgan and Ranking Member Bennett: We are requesting your support for four items in the fiscal year 2011 budget for the U.S. Army Corps of Engineers (USACE), related to the Missouri River Basin. These include: (1) \$78.4 million to continue implementation of the Missouri River Recovery Program, (2) \$5.5 million to continue funding for the Missouri River Authorized Purposes Study, (3) \$10 million to increase the operations and maintenance budget for the Northwestern Division, Omaha District, for protection of cultural and historical sites impacted by the operation of the Missouri River Mainstem Reservoir System and (4) inclusion of a provision in the fiscal year 2011 budget to allow reimbursement of travel expenses by tribal, State and non-governmental members of the Missouri River Recovery Implementation Committee to attend its meetings. No new funds are required for this action as the travel reimbursement can be paid with funds appropriated for the Missouri River Recovery Program, if the prohibition against reimbursement of travel in section 5018 WRDA 2007 is amended by a provision in the budget bill.

The Missouri River Association of States and Tribes (MoRAST) is an association of representatives of the Governors of the States of Wyoming, Montana, North Dakota, South Dakota, Nebraska, Iowa and Kansas and many of the American Indian tribes in the Missouri River Basin. MoRAST is interested in the proper management and protection of natural resources, including water resources, fish and wildlife and other related issues of interest to the States and tribes in the basin, including cultural resources. The programs and operations of the USACE are very important to our members, especially due to the legal responsibilities of the States and tribes related to water and the fish and wildlife resources in the basin, as well as the trust responsibilities of the USACE to the tribes. The following paragraphs provide detailed information regarding the bases for our support of the four items referred to above for fiscal year 2011 budget of the USACE, as outlined below:

Funding for Missouri River Recovery Program.—\$119 million is needed for compliance with the Biological Opinion (BiOP). We strongly support the \$78.4 million in the President's budget as the minimum necessary for current year compliance with the BiOP. The Missouri River Recovery Program (MRRP) was established by the USACE as a collaborative program to protect, recover and restore the Missouri River ecosystem and its native species, including the endangered pallid sturgeon, least tern and piping plover. This program is authorized by sections 3109, 3176 and 5018 of the Water Resources Development Act (WRDA) 2007. Support for this program is critical to ensure at least enough funding is available for compliance with the Biological Opinion, as amended in 2003. Compliance with the BiOP also protects economic uses as failure to comply with the Biological Opinion could require changes to reservoir operations and negatively impact other purposes.

The USACE, various tribal, State and Federal cooperating agencies and the Missouri River Recovery Implementation Committee (MRRIC) that includes various Stakeholders, are also in the process of developing a collaborative study and plan known as the Missouri River Ecosystem Restoration Plan (MRERP) to identify and guide long term actions required to restore ecosystem functions, mitigate habitat losses, and recover native fish and wildlife on the Missouri River, while seeking to balance social, economic, and cultural values for future generations.

In addition to recovery and mitigation projects on the Missouri River Mainstem, a project to provide for fish passage through a diversion dam on the Yellowstone River near Intake, Montana is especially important to the recovery of the endangered Pallid Sturgeon, as it will open up a large segment of free flowing river. Work on this important tributary project is underway with fiscal year 2010 funding and is being implemented through a cooperative effort of the U.S. Bureau of Reclamation, USACE, U.S. Fish and Wildlife Service (USFWS) and the State of Montana.

In summary, funding the Missouri River Recovery Program at a minimum of \$78.4 million for fiscal year 2011 is essential to ensure compliance with the Biological Opinion on the Missouri River and to implement the project on the Yellowstone River near Intake, Montana, both of which are of critical importance to the recovery of endangered species and the restoration of the ecosystem.

Funding for the Missouri River Authorized Purposes Study (MRAPS).—We strongly support appropriation of \$ 5.5 million to continue funding for MRAPS in fiscal year 2011. Congress appropriated \$4.483 million in fiscal year 2010. MRAPS was authorized to study the Missouri River Projects under the 1944 Flood Control Act (FCA) to determine whether changes to the purposes and existing Federal infrastructure may be needed. The study was authorized for a total cost of \$25 million at full Federal expense.

The Missouri River Basin Project (Pick-Sloan Program) envisioned a comprehensive system of projects and facilities in the Missouri River basin constructed by both the Bureau of Reclamation and the USACE. The plan was only partially completed and there continue to be water needs and related issues in the basin, many of which are different than they were in 1944. This study is important for many reasons. It has been about 65 years since the 1944 FCA was enacted and many changes have occurred. The Missouri River Mainstem Reservoir System continues to be operated in accordance with the 1944 FCA for various authorized purposes including flood control, water supply, water quality, irrigation, hydropower, navigation, recreation and fish and wildlife. However, while the construction of the reservoir system and other works have resulted in large project benefits from some of the authorized purposes and much less for others, it has also created substantial negative impacts on the economies and resources of Indian tribes and others, as well as large environmental losses, such as wetlands and habitat for a number of native species, including three that are threatened or endangered.

In summary, there have been many changes in the physical, economic and environmental conditions that affect the Missouri River Projects and the basin since 1944. The USACE needs \$5.5 million for the study in fiscal year 2011. That amount should be provided so the study can objectively determine whether changes are needed to the 1944 FCA in order to best meet the contemporary needs of the Missouri River Basin. Once the study is complete, Congress can decide whether the law should be changed or not.

Funding to Protect Tribal Cultural Resources.—It is requested that Congress specifically appropriate \$10 million for fiscal year 2011 as a line item for the Omaha District, Northwestern Division, USACE for the stabilization of cultural and historic sites that continue to be negatively impacted by the operation of the Missouri River Mainstem Reservoir System. Funding for the protection of cultural and historic sites within the Omaha District has remained at \$3 million for the past several years. Past funding through the USACE operation and maintenance budget has been woefully inadequate to address the ongoing damage to sites from operation of the Missouri River Mainstem Reservoir System.

The USACE has identified over 400 historic and cultural sites protected by Federal law that will be potentially damaged by the current annual operations plan and the tribal nations in the Missouri River Basin have identified many more sites that could be impacted. However, there have only been funds to mitigate damage to a few sites each year. The USACE has a unique trust responsibility to the 28 Missouri River Basin tribes arising from the government-to-government relationship between the tribes and the United States Government, as well as an obligation under section 106 of the National Historic Preservation Act, applicable Executive orders, and other Federal laws, which require the USACE to either halt any Federal undertaking that will damage or destroy sites protected, or to mitigate the potential damage.

Funding for Travel and Participation in MRRIC and MRRP Activities.—We support inclusion of a provision in the fiscal year 2011 budget bill to remove the prohibition on Federal reimbursement of travel expenses for non-Federal members of the Missouri River Recovery Implementation Committee (MRRIC) to attend its meetings. No new funds are required for this action as it can be funded through the Missouri River Recovery Program (MRRP), but this action is needed to improve the functionality and chances for success of MRRIC.

Section 5018 of WRDA 2007 authorized the creation of MRRIC, but prohibited Federal reimbursement of travel expenses for non-Federal members of the committee. The same section of WRDA 2007 also authorized the development of a Missouri River Ecosystem Restoration Plan (MRERP), which is a part of the MRRP. The failure to reimburse travel expenses is a hardship for some MRRIC members. It also hinders participation and prevents balanced representation by tribal, State and non-governmental members on the committee. Lack of travel reimbursement

also makes participation difficult by States and tribes difficult as cooperating agencies for the MRERP study, especially during these trying economic times and budget shortfalls for States, tribes and others.

The USACE has a unique trust responsibility to the 28 Missouri River Basin tribes and their participation in both MRRIC and MRERP activities is vital to the success of efforts to restore the ecosystem of the Missouri River consistent with the social, cultural and economic needs in the Basin. The failure to fund travel for the tribes to attend these meetings will not save money and may result in delay or the need for more extensive government-to-government consultations if the tribes are not able to participate adequately during the course of efforts by MRRIC to make recommendations to the USACE regarding recovery programs and the development MRERP.

We recognize that section 5018 could also be amended by the next WRDA bill to remove the prohibition on travel reimbursement for attendance at MRRIC meetings. However, that may take more time, while the need to fund travel reimbursement should begin as soon as possible so that all members can participate, receive the background materials, develop relationships and provide meaningful recommendations to the USACE and other agencies regarding Missouri River Recovery programs as may be appropriate through the MRRIC process.

In summary, we believe each of these programs is essential to the success of efforts to properly manage and protect the natural resources of the Missouri River Basin, satisfy the USACE trust responsibilities to the Indian nations in the basin and operate its projects in accordance with applicable Federal law. We would appreciate your help in providing adequate funding for these important programs and projects. Please let David Pope, MoRAST executive director, or me know if you have questions.

PREPARED STATEMENT OF THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND
DEVELOPMENT

On behalf of LADOTD, Office of Public Works and Intermodal Transportation, we present recommendations for fiscal year 2011 appropriations for U.S. Army Corps of Engineers Civil Works Projects in Louisiana.

Louisiana contains the terminus of the Mississippi River, third largest drainage basin in the world, draining 41 percent, or 1¼ million square miles, of the contiguous United States and parts of two Canadian provinces. Consequently, a comprehensive and extensive flood control system is required to ensure that these drainage flows are contained and safely passed to the gulf. Almost 3,000 miles of levees (1,500 in the MR&T system) constructed jointly by Federal, State and local entities allow Louisiana to be habitable year-round. Concentrated behind these levees are the vast majority of Louisiana's urban centers and petro-chemical complexes. Nearly 75 percent of the population lives and works in those same areas. Approximately 60 percent of the State's agricultural products are produced in these protected areas. Louisiana has the second largest refining capacity in the Nation, producing 15 billion gallons of gasoline annually at 19 refineries. Louisiana ranks second in produced natural gas and third for oil production. The pipeline system which supplies much of this Nation with natural gas and refined petroleum products originates in Louisiana. It is important to note that the petrochemical, oil and gas industries in Louisiana that contribute significantly to the economic well being of the entire Nation are almost totally dependent on this Federal constructed flood control system to protect their facilities.

It is equally important to note that this same river drainage system forms the backbone of the Federal constructed Inland Waterway System which provides the Nation's heartland cost effective access to the global marketplace via the 230 mile deepwater channel of the lower Mississippi River from Baton Rouge to the gulf. This strategic gateway to international markets is the largest port complex in the world. The Inland Waterway System—the whole system—allowed industrial facilities scattered throughout the central portion of the Nation to obtain raw materials and fuel from distant locations and to reach worldwide markets. These industries, and most of the agricultural industries in mid-America, are heavily dependent on the Federal maintained navigable waterways to remain globally competitive in transporting their products. Unfortunately, the administration's budget proposals in recent years indicate a lack of concern for the preservation and efficient operation of this system which is rapidly deteriorating due to lack of maintenance and is in desperate need of renovation and modernization.

The Mississippi River and Tributaries Project (MR&T), which encompass both flood control and navigation features, has been underway since 1928 and isn't sched-

uled for completion until beyond 2031. We strongly support the Mississippi Valley Flood Control Association's request for the MR&T Project and urge your support of this level of funding.

SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2011 FOR LOUISIANA FLOOD CONTROL, NAVIGATION, HURRICANE PROTECTION & WATER RESOURCES PROJECTS

LOUISIANA PROJECTS	LOUISIANA REQUEST
GENERAL INVESTIGATIONS STUDIES	
Amite River-Ecosystem Restoration, LA	\$500,000
Calcasieu Lock, LA	2,000,000
Red River (IBJWW) Recon Study	100,000
Southwest Coastal LA Hurricane Protection, LA	1,500,000
St. Charles Parish Urban Flood Control, LA	445,000
West Shore—Lake Pontchartrain, LA	500,000
Bossier Parish Levee & FC	250,000
Cross Lake Water Supply	50,000
Ouachita River and Tribs	200,000
Ouachita and Black	100,000
PED	
Bayou Sorrel Lock, LA	2,239,000
Calcasieu River Basin, LA	250,000
Calcasieu River & Pass Navigation, LA	1,000,000
Port of Iberia, LA	1,000,000
NEW STUDIES	
South Central LA Coastal Protection	100,000
Port Fourchon Enlargement, LA	100,000
Cameron Loop, Calcasieu Pass	100,000
East Fork, Calcasieu Pass	100,000
University Lakes	200,000
Bayou Rigaud Ext. Dredging & Breakwater Prot.	100,000
Chenier Caminada Levee Ext. & Levee Armoring Grand Isle, LA	100,000
Laurel Ridge Levee Ext., Ascension Parish	100,000
CAP	
Kenner Environmental Infrastructure	500,000
Lafourche Parish Environmental Infrastructure	500,000
Plaquemines Parish Environmental Infrastructure	500,000
St. Bernard Environmental Infrastructure	500,000
St. Charles Environmental Infrastructure	500,000
St. James Environmental Infrastructure	500,000
St. John the Baptist Environmental Infrastructure	500,000
St. Tammany Environmental Infrastructure	500,000
West Baton Rouge Environmental Infrastructure	500,000
CONSTRUCTION GENERAL	
Comite River, LA	25,000,000
East Baton Rouge Parish, LA	25,000,000
Larose to Golden Meadow	5,500,000
IHNC Lock	13,000,000
Red River Below Den Dam (AR, LA)	12,000,000
Ouachita River Levees	2,600,000
J Bennett Johnston WW, Miss. R. to Shreveport	20,000,000
Calcasieu River & Pass, Dredged Material Management Program	12,000,000
Southeast Louisiana	21,200,000
Violet Freshwater Diversion	5,500,000
West Bank & Vicinity, LA	5,000,000
Ascension Parish Environmental Infrastructure	2,000,000
East Baton Rouge Environmental Infrastructure	2,000,000
Livingston Parish Environmental Infrastructure	2,000,000
OPERATIONS & MAINTENANCE GENERAL	
Atchafalaya River, Bayous Chene, Boeuf & Black	36,700,000

**SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2011 FOR LOUISIANA FLOOD
CONTROL, NAVIGATION, HURRICANE PROTECTION & WATER RESOURCES PROJECTS—Continued**

LOUISIANA PROJECTS	LOUISIANA REQUEST
Barataria Bay Waterway	135,000
Bayou Lafourche	4,300,000
Bayou Segnette	37,000
Bayou Teche	8,900,000
Bayou Teche & Vermilion	650,000
Calcasieu River & Pass	57,233,000
Freshwater Bayou	14,875,000
Gulf Intracoastal Waterway	41,000,000
Houma Navigation Canal	7,100,000
Mermentau River	11,410,000
Mississippi River, Baton Rouge to the Gulf	170,169,000
Mississippi River Gulf Outlet at Venice	8,338,000
Waterway Empire to the Gulf	47,000
WW. IWW to Bayou Dulac	30,000
Ouachita & Black Rivers (AR, LA)	24,135,000
Bayou Bodcau	6,922,000
Caddo Lake	347,000
Wallace Lake	886,000
Bayou Pierre	49,000
J Bennett Johnston Waterway	23,864,000
Lake Providence Harbor	1,200,000
Madison Parish Port	150,000
Inspection of Completed Works (N.O.)	1,161,000
Inspection of Completed Works (V)	1,000,000

**SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2010 FOR LOUISIANA MISSISSIPPI
RIVER AND TRIBUTARIES**

LOUISIANA PROJECTS	LOUISIANA REQUEST
FC, MR&T GENERAL INVESTIGATIONS	
Alexandria to the Gulf (PED)	\$1,200,000
Donaldsonville to the Gulf	500,000
Houma Navigation Canal Deepening (PED)	3,000,000
Morganza to the Gulf (PED)	50,000
Spring Bayou Area, LA	50,000
FC, MR&T CONSTRUCTION	
Atchafalaya Basin	25,000,000
Atchafalaya Basin Floodway System	2,631,000
Channel Improvement (N.O. Dist.)	11,861,000
Mississippi Delta Region	15,338,000
Mississippi River Levees, LA (N.O. Dist.)	30,000,000
Mississippi River Levees (LA) (V. Dist.)	27,930,000
Channel Improvement (LA) (V. Dist.)	27,930,000
FC, MR&T MAINTENANCE	
Atchafalaya Basin	39,900,000
Atchafalaya Basin Floodway System	1,878,000
Baton Rouge Harbor (Devil's Swamp)	42,000
Bayou Cocodrie and Tributaries	47,000
Bonnet Carre Spillway	5,300,000
Channel Improvement (N.O. Dist.)	14,128,000
Dredging (N.O. Dist.)	700,000
MS Delta Region	1,921,000
Old River	12,755,000
Mississippi River Levees (LA) (N.O. Dist.)	6,500,000
Mississippi River Levees (LA) (V. Dist.)	4,400,000
Revetments & Dikes (LA) (V. Dist.)	21,052,000

SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2010 FOR LOUISIANA MISSISSIPPI
RIVER AND TRIBUTARIES—Continued

LOUISIANA PROJECTS	LOUISIANA REQUEST
Dredging (LA) (V. Dist.)	5,023,000
Boeuf & Tensas Rivers	3,244,000
Red River Backwater	9,496,000
Lower Red River	498,000
Inspection of Completed Works (V)	681,000
Inspection of Completed Works (N.O.)	940,000

PREPARED STATEMENT OF THE MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION

The Mississippi Valley Flood Control Association respectfully requests that the sum of \$550 million be appropriated in fiscal year 2011 for the Mississippi River and Tributaries Project.

In view of the fact that there are some new members of the subcommittee, it seems appropriate to very briefly explain a little of the history of the Flood Control Association that was first organized in 1922 by a group of interested citizens from the States of Arkansas, Mississippi and Louisiana. From that first meeting, held in Memphis, Tennessee, a group was selected to come to Washington in an attempt to convince both the Congress and the executive branch that the prevention of catastrophic floods in the lower Mississippi River Valley was beyond the capabilities of the local people and was in fact too large for any group other than the United States Government. This group of dedicated citizens was without luck until the record flood of 1927 swept through the Mississippi River Valley with the fury of devastation not seen before. An unknown number of people perished along with thousands of heads of livestock and all manner and large numbers of wildlife. Some 7 percent of all the productive land on this planet was under water for a period of almost half a year. The Congress, after extensive hearings, passed the Flood Control Act of May 15, 1928 that was signed into law by then President Calvin Coolidge.

The Flood Control Association, acting under the erroneous assumption that the United States Government would provide all that was needed to prevent flooding in the valley, disbanded. In 1935 it became apparent that additional legislation was required and the association, under the leadership of then Senator John Overton from Louisiana, was re-organized and has been in continuous and active existence since. This is our 75th year to hold a meeting in Washington, to request funds for the Mississippi River and Tributaries Project.

We have been fortunate since 1935 to have as our President and two Vice Presidents, Members of the United States Congress with Congressman Ed Whitfield from the Commonwealth of Kentucky serving as our president and Congressmen Mike Ross from Arkansas and Phil Hare from Illinois serving as our vice presidents.

We appear before you today after having carefully considered the President's fiscal year 2011 budget for the Mississippi River and Tributaries Project. We find, as usual, that the executive department has sadly un-funded the Corps of Engineers civil works budget for the up-coming fiscal year. We also note that the Corps has stated that they have a capability under the Mississippi River and Tributaries Project to use \$550 million in fiscal year 2011. We would respectfully request that the Congress appropriate the amount of \$550 million for the Mississippi River and Tributaries Project.

This Nation is still faced with a war on terror and the economic situation is poor to say the least. We are ever mindful of these facts but we feel that we are justified in requesting additional appropriations for the Mississippi River and Tributaries Project because the assets and resources of this great Nation must not be neglected at this time. We are unaware of any other appropriation that contributes as much to national wealth and resources as does flood control and navigation for the major rivers of this country and that is certainly true for the mightiest of them all, the Mississippi, the third largest watershed on the planet.

Millions of acres of what were once overflow lands are now highly productive and contributes to our national wealth. These lands by reason of their geographic location are the most fertile of the Nation and ample water is available so that they can produce an abundance of food and fiber for the general welfare and prosperity of the country. This is only possible because of the coordinated work performed by the triad of the United States Corps of Engineers, the United States Congress and

the local people. The appropriations made by the Congress for the Mississippi River and Tributaries Project are investments in this Nation's future.

We are aware of the ever increasing demand on the Federal dollars and the many complex problems that the Congress is confronted with, but we believe that this project is economically sound, environmentally necessary, and we urge its completion with all deliberate haste. Our request of \$550 million is required to meet this goal.

The ultimate goal to be accomplished with the passage of the act of 1928 was that the lower valley would never again be destroyed by a flood such as that of the fateful year of 1927. By law, the Mississippi River and Tributaries Project provides protection against the "greatest possible flood" even though not yet completed. For over 80 years the project has worked to perfection with not one acre flooded that was designed not to be flooded. The project has also insured the permanency of location for harbor facilities and industrial sites and to obtain a more reliable navigation channel. With the help of the Congress we have made great strides in the Mississippi River Valley but the job is not yet completed. All the people of the valley will not feel or be safe until the job is completed.

PREPARED STATEMENT OF THE NATURE CONSERVANCY

Mr. Chairman and members of the subcommittee, thank you for the opportunity to present The Nature Conservancy's recommendations for fiscal year 2011 appropriations for the U.S. Army Corps of Engineers (Corps) and Bureau of Reclamation.

Our recommendations represent a priority set of efforts that are both individually important and collectively designed to demonstrate innovations in restoration to help guide future resource allocation. If done well, ecosystem restoration projects pay dividends through services such as provision of more reliable and higher quality water, natural flood attenuation, sustaining commercial fisheries, and supporting economically-important outdoor recreation. Moreover, the Nation's resiliency to climate change will be substantially dictated by the health of our ecosystems. We believe the public investments we are requesting now will pay dividends for decades to come.

CORPS CONSTRUCTION PRIORITIES

Continuing Authorities Program.—We thank the subcommittee for continuing its strong support of the section 1135: Project Modifications for Improvement of the Environment and section 206: Aquatic Ecosystem Restoration programs. However, demand for these programs continues to outstrip funding. The Nature Conservancy (the Conservancy) requests that the programs be fully funded by appropriating \$40 million for section 1135 and \$50 million for section 206.

The Conservancy seeks funding for two projects under the Continuing Authorities Program in fiscal year 2011: Spunky Bottoms (sec. 1135), and Emiquon East (sec. 206). Both are model projects to restore floodplain wetlands by reconnecting them to the Illinois River. Each project needs funding to complete its respective feasibility study, develop a project partnership agreement, and begin designs for the next phase. The Conservancy is the non-Federal cost share partner for both projects, and we request \$500,000 for the Spunky Bottoms project and \$185,000 for the Emiquon East project. Additional funds will be necessary for the planning, specification, construction and monitoring phases.

We continue to be concerned about the subcommittee's guidance for these programs. The prioritization requirements and "no new starts" rule included in the fiscal year 2009 report and renewed in fiscal year 2010 block the implementation of important conservation priorities that enjoy strong support from their local communities. We urge the subcommittee to adopt a more flexible approach. Appropriating the requested amounts will help address the backlog in these programs.

Upper Mississippi River Navigation and Ecosystem Sustainability Program.—The Navigation and Ecosystem Sustainability Program (NESP) is a dual purpose authority for integrated management of the Upper Mississippi River (UMR) system's habitat and navigation facilities. All activities implemented under the existing Environmental Management Program (EMP) can be transitioned into NESP, but it is critical to fund both programs until the transition is complete. In recognition of the current budgetary constraints, we request a NESP fiscal year 2011 new start of \$15 million. The Conservancy also supports \$25 million for EMP in fiscal year 2011.

Illinois River Basin Restoration Program.—This Federal-State partnership sustains the health of the entire Illinois River Basin through projects that restore habitats, species, and the natural processes that sustain them. It complements other Federal programs such as EMP and NESP, but is unique in its basin-wide approach

to restoration. The Conservancy supports \$7.9 million in Construction funding and \$1 million in Investigation funding for this program in fiscal year 2011.

Aquatic Nuisance Species Dispersal Barrier.—The Conservancy supports funding for the construction and maintenance of the Dispersal Barriers on the Chicago Sanitary and Ship Canal (CSSC) at no less than \$12,650,000 in fiscal year 2011. Additionally, we request at least \$1 million in fiscal year 2011 to conduct an expedited feasibility study of the comprehensive set of permanent solutions to prevent the movement of all invasive species through the CSSC. We note that the Corps has the capacity to effectively expend up to \$23,650,000 on construction and \$2,500,000 on the separation study, and we encourage the subcommittee to consider this greater investment to address this urgent problem.

Missouri River Fish and Wildlife Recovery Program (MRRP).—Under this program, the Corps has completed 30 projects in the lower Missouri Basin States to assist in the recovery of three listed species, restoring more than 40,000 acres of habitat. New authority allows expenditures in the upper basin States as well. Construction of fish passage and screens at Intake Dam is a priority for the recovery of the endangered pallid sturgeon and other warm-water fish. The Conservancy supports \$119 million for the MRRP in fiscal year 2011, including \$20 million to continue progress on the design and construction of fish passage and screens at Intake Dam.

Cartersville Diversion Dam Fish Passage.—This project would construct a fish passage at Cartersville Dam, allowing fish, including the Federal listed endangered pallid sturgeon, to reach the upstream portions of the Yellowstone River. This project, along with its companion project at Intake Dam, would open an additional 296 miles of habitat, which is critically needed for successful recovery of the sturgeon population. The Conservancy supports \$300,000 for this project in fiscal year 2011.

South Florida Ecosystem Restoration Program.—Corps flood control projects, coupled with agricultural and urban development, have degraded the Everglades, one of the most diverse and ecologically rich wetlands ecosystems in the world. WRDA 2007 authorized construction of the first projects under the Comprehensive Everglades Restoration Plan (CERP), and we support funding for the Indian River Lagoon South, Picayune Strand, and the Site 1 Impoundment. We place priority on funding the Kissimmee River Restoration Project, which is almost 75 percent complete and already a success story. The Conservancy requests \$246 million for the South Florida Ecosystem Restoration program in fiscal year 2011.

Hamilton City Flood Damage Reduction and Ecosystem Restoration.—This project will increase flood protection for Hamilton City, CA and surrounding agricultural lands and restore approximately 1,500 acres of riparian habitat. The PED phase for this project was completed in 2009, the non-Federal sponsor is in place and the project received construction authorization in WRDA 2007. The Conservancy supports \$15 million in fiscal year 2011 to complete the first phase of construction.

Chesapeake Bay Oyster Recovery.—Native oyster populations in the Chesapeake Bay have been decimated from historical levels by a century of overfishing, disease and pollution. This project will help move oyster populations toward sustainable levels. The requested appropriation will create more than 60 acres of oyster habitat. The Conservancy supports \$6 million in fiscal year 2011.

SUSTAINABLE RIVERS PROJECT

The Sustainable Rivers Project (SRP) is an initiative launched by the Corps in partnership with the Conservancy that recognizes the urgent need to update decades-old water management practices to meet society's needs today and in the coming decades. Currently working in eight demonstration river basins, the SRP is developing and demonstrating innovative approaches to reservoir operations that restore critical ecosystems and valuable ecosystem services, while continuing to provide for (and often improving) water supply and flood risk management. The Conservancy supports funding for several initiatives that will support the SRP:

Global Change Sustainability.—Evolving and accumulating challenges to water management, such as expanding water and energy demands, shifting economic and land use patterns and environmental degradation, require innovation in our water management practices. This project will allow the Corps to advance a variety of new practices through several initiatives, including the SRP, working with other Federal agencies to develop a national strategy for climate change adaptation, updating drought contingency plans, and others. The Conservancy supports \$10 million in fiscal year 2011 for this program.

National Portfolio Assessment for Reallocations.—Launched in fiscal year 2008, this assessment is a national effort to learn from past water management tech-

niques and improve upon them. A national database will incorporate data from water supply surveys, climate studies, drought contingency plans, and other sources, helping the Corps assess its past practices and make project- and basin-scale predictions for the future. The SRP will be part of this effort, developing new methods that can be used at Corps dams nationwide. The Conservancy supports \$1 million in fiscal year 2011 for this program.

Willamette River Floodplain Restoration Study.—The Corps and the Conservancy are working together to identify ecological flow requirements downstream of Corps dams, and to incorporate those flows into dam operations. The ultimate goal of this study is to enable system-wide changes in dam operation and floodplain management that improve fish and wildlife habitat and community flood protection. The Conservancy supports \$153,000 in fiscal year 2011 to continue this study.

Connecticut River Watershed Study.—This project will restore 410 miles of river flow and thousands of acres of natural habitat in the Connecticut River Basin. The basin is a priority landscape for the Conservancy due to its high quality tributary systems, unique natural communities and multitude of ESA-listed species. The study identifies dam management modifications for environmental benefits while maintaining beneficial human uses. We support \$750,000 in fiscal year 2011 for this project.

White River Basin-wide Comprehensive Study.—The ecology of the White River Basin is impacted by Federal impoundments, water withdrawals for agriculture, power generation, and modifications for navigation. This project will help determine the condition of the basin and its future ecological and human needs. The Conservancy supports \$1,500,000 in fiscal year 2011 for this study.

Big Cypress Basin Watershed Study.—This study, part of a project to restore the natural river flow of Big Cypress Bayou to enhance aquatic ecosystem health and the globally significant Caddo Lake wetlands, would allow the Corps to evaluate the potential ecosystem restoration benefits and impacts of flow recommendations developed with the Conservancy. It would also develop sediment and nutrient load guidelines and consider modifying the Caddo Lake weir to allow manipulation of lake levels for bald cypress regeneration and aquatic plant control. We support \$175,000 in fiscal year 2011 for this study.

OTHER CORPS INVESTIGATION PRIORITIES

Puget Sound Nearshore Ecosystem Restoration Project.—The recovery of Puget Sound is a top priority for Washington State and the Corps' Puget Sound Nearshore Ecosystem Restoration Project (PSNERP) comprises one of the most important pieces of the Governor's recovery plan. The Conservancy requests \$1.5 million in fiscal year 2011 (in the Investigations account) to advance this critical project. The Conservancy also requests \$7 million (in the Construction account) in fiscal year 2011 for the Puget Sound and Adjacent Waters Program—a program that provides funding for early action projects to restore Puget Sound.

Long Island Sound Oyster Restoration.—This project will develop a comprehensive Master Plan for the restoration of oysters and other shellfish in Long Island Sound, supporting both ecological and economic well-being by providing a sustainable oyster fishery and creating habitat for other coastal and marine species. The Conservancy supports \$250,000 in fiscal year 2011 for this important effort.

Lower Mississippi River Resource Assessment.—Flood control and drainage systems have accelerated erosion and habitat loss along the 954-mile Lower Mississippi River and its tributaries. Working with the U.S. Department of Interior, the Corps will evaluate the state of river management, habitat and public access along the Lower Mississippi and recommend action to address current and future needs. The Conservancy supports \$200,000 in fiscal year 2011 for this project.

West Pearl River Navigation Study.—The aquatic communities of the Pearl, West Pearl and Bogue Chitto Rivers are severely disrupted by old and disused navigation structures. This study will allow the Corps to consider removing them or repurposing the structures to accommodate environmental and recreational needs. The Conservancy supports \$100,000 in fiscal year 2011 for the Reconnaissance study.

Thames River Basin Watershed Study.—The Thames River Basin ecosystem depends on naturally variable water flow, good water quality and suitable habitat. This study will determine which research and measures are necessary to improve the management of water control structures in the basin. We support \$100,000 in fiscal year 2011 to complete the reconnaissance phase.

Middle Potomac River Watershed Comprehensive Study.—This study will develop a comprehensive, multi-jurisdictional sustainable management plan for the Middle Potomac watershed, balancing the ecological functions and services provided by the

river with the human demands upon it. To help complete the watershed assessment, we support \$68,000 in fiscal year 2011.

Yellowstone River Corridor Comprehensive Study.—Funding this ongoing study of economics, fisheries, and wetlands studies will help ensure that the longest free-flowing river in the lower 48 States maintains its natural functions while supporting irrigation and other economic uses of its waters. The Conservancy supports \$750,000 for fiscal year 2011.

Susquehanna River Basin Low Flow Management and Environmental Restoration.—Drought conditions, combined with current and projected demands for water use, have the potential to impact natural ecosystems in the Susquehanna River basin and the upper Chesapeake Bay. This basin-wide study will investigate low flow conditions and establish goals and standards for low flow management. The Conservancy supports \$400,000 in fiscal year 2011 for this project.

CORPS EXPENSES

Mid-Atlantic River Basin Commissions.—The Delaware, Potomac, and Susquehanna River Basin Commissions are essential to advancing and coordinating the water management and conservation interests of the Federal Government, the affected States, and the Conservancy. Funding was restored in fiscal year 2009, but it was not continued in fiscal year 2010. The Conservancy requests that the Federal Government continue support of the Commissions' work by appropriating \$2,365,000 in fiscal year 2011.

BUREAU OF RECLAMATION

Upper Colorado River Endangered Fish Recovery and San Juan River Basin Recovery Programs.—These programs take a balanced approach to restore four endangered fish species in the Colorado River system while allowing water use to continue in the arid West. A full appropriation will fund work on remaining major capital projects. The Conservancy supports \$8,354,000 in fiscal year 2011 for these Programs.

Platte River Recovery Implementation Program.—An agreement between the Governors of Wyoming, Nebraska and Colorado and the Secretary of Interior sets forth a plan to restore habitat for five endangered or threatened species in the Platte River basin. The Conservancy supports \$12,707,000 for this recovery effort in fiscal year 2011.

Basin Studies and WaterSMART.—Basin Studies are a component of the new WaterSMART program that helps the Bureau of Reclamation address the threat of climate change across our Nation's western waters. The Basin Study being conducted on the Colorado River will assess and work to resolve water supply and demand issues that may be exacerbated by climate change, while considering impacts on the basin's ecological resiliency. The WaterSMART program can complement that study by delivering grants to local stakeholders developing mechanisms to improve both water supply imbalances and environmental flows. The Conservancy supports a \$62 million appropriation to the Bureau of Reclamation for the WaterSMART program in fiscal year 2011, including \$6 million for its Basin Studies.

Thank you for the opportunity to present our comments on the Energy and Water Appropriations bill.

PREPARED STATEMENT OF THE VENTURA PORT DISTRICT OF CALIFORNIA

Mr. Chairman: Thank you for the opportunity to present testimony on behalf of the Ventura Port District of California. My name is Richard W. Parsons. I am the Dredging Program Manager of the Port. The President's fiscal year 2011 request within the operations, maintenance and dredging component of the civil works budget for the U.S. Army Corps of Engineers is \$2,840,000 for the annual dredging of Ventura Harbor. Informal communications with the Corps indicate that \$4,300,000 will be required to meet dredging needs of the port between October 1, 2010 and September 30, 2011. This higher amount is consistent with the dredging requirements of the past several years. Accordingly, it is respectfully requested that the Congress appropriate an additional \$1,460,000 beyond the President's request to meet anticipated Corps of Engineer requirements. It is worthy of note that employment associated with the commercial fishing industry in the Port of Ventura area is directly related to the dredging activities of the Corps. An estimated 71 million pounds of seafood were unloaded at the facilities associated with the Port of Ventura which provides significant employment in the area. Thank you very much for your favorable consideration of this request.

PREPARED STATEMENT OF THE CITY OF SANTA BARBARA, CALIFORNIA

OPERATIONS AND MAINTENANCE DREDGING—FUNDING REQUEST

As your distinguished subcommittee writes the fiscal year 2011 Energy and Water Resources Appropriations bill, I would like to bring a very important Corps of Engineers' project to your attention. The city of Santa Barbara requests \$3,700,000 from the Army Corps of Engineers' (ACOE) Operation and Maintenance (O&M) Account in fiscal year 2011 Energy and Water Development Appropriations bill for essential annual maintenance dredging of Santa Barbara Harbor's Federal Navigational Channel.

PROJECT JUSTIFICATION

In 1970 Congress authorized (Public Law 91-611, sec. 114) full funding for ACOE maintenance dredging for the Harbor's Federal Channel to reduce storm damage, shoaling and navigational hazards. Today more than ever, the Harbor continues to serve and support our National interests. The Harbor is home port for the 87 foot U.S. Coast Guard Cutter *Blackfin* and NOAA R/V *Shearwater* serving Channel Islands National Marine Sanctuary (CINMS). *Blackfin's* harbor location is crucial to its mission of patrolling waters all the way to Morro Bay (100 miles north) and is critical to ocean safety and rescue, together with emerging Homeland Security Defense System (USCG) requirements along the California coastline. Santa Barbara Harbor also provides a staging area, facilities and resources required for oil spill prevention and response, and is a designated harbor of safe refuge.

Santa Barbara Harbor was constructed in the late 1920's providing the closest harbor of refuge to the notoriously dangerous waters off Pt. Conception. Various improvements over the years have created an all-weather harbor with 1,133 slips for vessels ranging from 20 feet to 150 feet in length serving hundreds of thousands of people annually. The Harbor serves as a key economic engine for the city. In addition, the Harbor both directly and indirectly creates several thousand jobs, which are vital to the local economy, commercial fishing, businesses and maritime industry.

Santa Barbara Harbor impedes the transport of sand downcoast resulting in shoaling of the Federal Channel and potential coastal erosion at several nearby coastal communities. The Corps of Engineers conducted comprehensive studies of the harbor in the 1950's and determined that annual dredging of the harbor was necessary to maintain navigability and nourish downcoast beaches preventing erosion. It is essential to dredge approximately 250,000 cubic meters (c.m.) of sand from the Federal Channel every year to maintain access for the commercial fishing fleet (annual catch is valued at \$25 million), U.S. Coast Guard Cutter *Blackfin*, NOAA R/V *Shearwater* serving Channel Islands National Marine Sanctuary as well as thousands of recreational vessels.

Annual dredging costs of the Federal Channel have recently been as low as \$1,650,000 for minimal critical maintenance dredging and can cost over \$3 million depending on winter storms and sand accumulation. Army Corps of Engineers (Corps) contracts with a private dredge company to undertake annual dredging between October and March of the fiscal year.

A recap of the last several years demonstrates the continuing trend of reduced dredge funding, which could impact Harbor operations and eventually accumulated sand could close the channel during winter storms.

Fiscal Year 2008: Conference.—\$1,940,000

Fiscal Year 2009: Omnibus Bill.—\$1,940,000

Fiscal Year 2010: Conference Report.—\$1,606,000

FUNDING REQUEST

The President's fiscal year 2011 budget recommendation includes \$2,040,000 for operations and maintenance dredging for Santa Barbara Harbor. I respectfully request that the U.S. Senate, through your subcommittee, support that level of funding contained in the President's budget submittal for dredging of the Harbor. In addition, the city of Santa Barbara is requesting that the subcommittee recommend an additional, \$1.7 million for maintenance dredging for fiscal year 2011 (Total \$3.7 million).

Dredging costs per cubic yards removed, have increased dramatically in recent years. Due to these escalating costs, the Corp of Engineers has increased the project costs to \$3.7 million for maintaining the Federal Channel in Santa Barbara Harbor.

We respectfully request your support for this requirement to maintain the Federal Channel and thank you for the opportunity to submit this statement.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

PREPARED STATEMENT OF THE PERKINS COUNTY RURAL WATER SYSTEM, INC.

Perkins County Rural Water System, Inc. respectfully submits this written testimony to the Appropriations Subcommittee on Energy and Water Development for appropriations of \$3.142 million for fiscal year 2011. This project was authorized under Public Law 106-136.

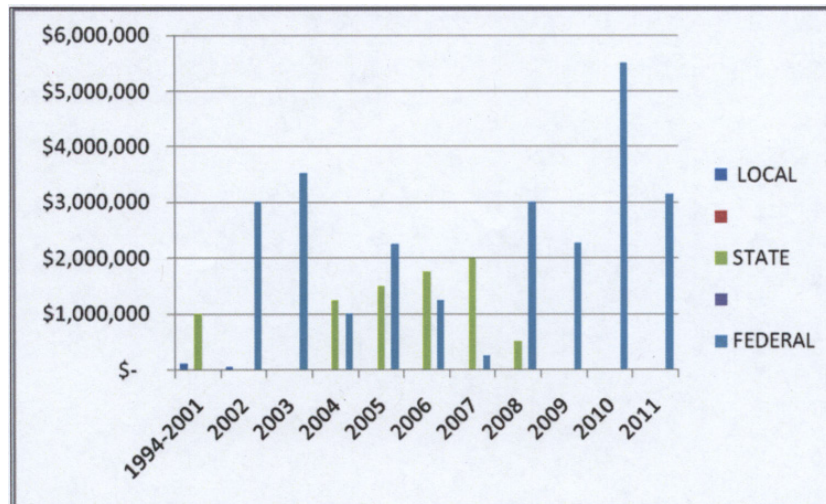
Perkins County Rural Water System, Inc. (PCRWS) gained the approval of the Office of Management and Budget and the Bureau of Reclamation to proceed with construction in 2004. With funding for 2010, we have been appropriated to date \$16.9 million. In 2009 and 2010, we received \$2.65 million and \$1.0 million respectively. Three million dollars is basically the lowest amount that we could receive and still do enough construction to move our project forward. Cost share for the System is 75 percent Federal, 25 percent State and local funds. The State of South Dakota has legislated to loan PCRWS the local share for 40 years at 3 percent interest to keep costs down to the consumer. We have used all of our State of South Dakota funds. With local and State funds to date, we would now be able to cost share up to \$36.4 million. Total project funds are projected at \$32.0 million to finish with \$24 million of that amount to be Federal funds.

BREAKDOWN FOR THE PROJECT FOR 2011 IS AS FOLLOWS

2010 BUDGET:	
INCOME:	
BUREAU OF RECLAMATION	\$3,142,000
STATE OF SOUTH DAKOTA .....	.....
LOCAL FUNDS	25,000
TOTAL	3,167,000
EXPENSE:	
NORTH DAKOTA STATE WATER COMMISSION	886,760
FINISH CONSTRUCTION ON DISTRIBUTION	2,280,240
TOTAL	\$3,167,000

PCRWS would need \$3.167 million for the next year to complete the project by 2011. This consists of 250 miles of various pipe sizes ranging from 1.5 inch to 8 inch, booster stations, and a pump station capable of moving 800 gallons of water per minute, two or more storage tanks and telemetry to operate the whole system from one localized location.

The chart below shows the amount of Federal funds in comparison to State and local funds. The amount of State and local funds has exceeded the cost share for both. Therefore, all funds except for approximately \$25,000 per year will have to be Federal funds.



The quality of water in northwest South Dakota is the main concern for the health and well being of the people. Although the water typically meets primary standards established by the USEPA, most of the dissolved solids are exceedingly high by the State of South Dakota standards. Water quality and quantity in Perkins County, South Dakota has been a plague for the county over many years.

Droughts, such as the one Perkins County is in now, are a fact of life for the people in this area. With surface water gone and wells being depleted, farmers and ranchers are desperately trying to hold onto their livestock herds. Rains will raise grass and small crops, but water for drinking is a constant problem for all.

On behalf of the Board of Directors of PCRWS and the people of Perkins County, South Dakota, thank you for allowing us to enter this testimony in the subcommittees report.

PREPARED STATEMENT OF THE COLORADO RIVER BASIN SALINITY CONTROL FORUM

BUREAU OF RECLAMATION—FISCAL YEAR 2011 APPROPRIATION

Colorado River Basin Salinity Control Forum's Recommendation:	
Title II Program (Basinwide Program) Authorized in 1995 (Public Law 104-20)	\$17,500,000
Colorado River Water Quality Improvement Program	(¹)
Paradox Valley Unit and Grand Valley Unit	(¹)

¹ Administration request.

This testimony is in support of funding for the title II Colorado River Basin Salinity Control Program. The Congress has designated the Department of the Interior, Bureau of Reclamation (Reclamation), to be the lead agency for salinity control in the Colorado River Basin. This role and the authorized program were refined and confirmed by the Congress when Public Law 104-20 was enacted. A total of \$17,500,000 is requested for fiscal year 2011 to implement the needed and authorized program. Failure to appropriate these funds will result in significant economic damage in the United States and Mexico.

In recent years, the President's requests have dropped to below \$10 million. The Colorado River Basin Salinity Control Forum (Forum) finds this unacceptable. Reclamation has requests for funding of many very cost-effective proposals through its Basinwide Program that far exceed this funding level. In the judgment of the Forum, this amount is inappropriately low. Water quality commitments to downstream United States and Mexican water users must be honored while the Basin States continue to develop their Colorado River Compact-apportioned waters. Concentrations of salts in the river cause about \$353 million in quantified damage in the United States with significantly greater unquantified damages. Damages occur from:

- A reduction in the yield of salt sensitive crops and increased water use for leaching in the agricultural sector;
- A reduction in the useful life of galvanized water pipe systems, water heaters, faucets, garbage disposals, clothes washers, and dishwashers, and increased use of bottled water and water softeners in the household sector;
- An increase in the use of water for cooling, and the cost of water softening, and a decrease in equipment service life in the commercial sector;
- An increase in the use of water and the cost of water treatment, and an increase in sewer fees in the industrial sector;
- A decrease in the life of treatment facilities and pipelines in the utility sector;
- Difficulty in meeting wastewater discharge requirements to comply with National Pollutant Discharge Elimination System permit terms and conditions, and an increase in desalination and brine disposal costs due to accumulation of salts in groundwater basins; and
- Increased use of imported water for leaching and the cost of desalination and brine disposal for recycled water.

The Forum, therefore, believes implementation of the program needs to be accelerated to a level beyond that requested by the President in the past.

The program authorized by the Congress in 1995 has proven to be very successful and very cost effective. Proposals from the public and private sector to implement salinity control strategies have far exceeded the available funding and Reclamation has a backlog of proposals. Reclamation continues to select the best and most cost-effective proposals. Funds are available for the Colorado River Basin States' cost sharing for the level of Federal funding requested by the Forum. Water quality improvements accomplished under title II of the Colorado River Basin Salinity Control Act also benefit the quality of water delivered to Mexico. Although the United States has always met the commitments of the International Boundary & Water Commission's (Commission) Minute No. 242 to Mexico with respect to water quality, the United States Section of the Commission is currently addressing Mexico's request for better water quality at the International Boundary.

Some of the most cost-effective salinity control opportunities occur when Reclamation can improve irrigation delivery systems at the same time that the U.S. Department of Agriculture's (USDA) program is working with landowners (irrigators) to improve the on-farm irrigation systems. Through the USDA Environmental Quality Incentives Program, adequate on-farm funds appear to be available and adequate Reclamation funds are needed to maximize the effectiveness of the effort. These salinity control efforts have secondary water conservation benefits at the point of use and downstream at other points of use.

OVERVIEW

In 2000, the Congress reviewed the program as authorized in 1995. Following hearings, and with administration support, the Congress passed legislation that increased the ceiling authorized for this program by \$100 million. Reclamation has received cost-effective proposals to move the program ahead and the Basin States have funds available to cost-share up-front.

The Colorado River Basin Salinity Control Program was originally authorized by the Congress in 1974. The title I portion of the Colorado River Basin Salinity Control Act responded to commitments that the United States made, through Minute No. 242, to Mexico concerning the quality of water being delivered to Mexico below Imperial Dam. Title II of the Act established a program to respond to salinity control needs of Colorado River water users in the United States and to comply with the mandates of the then newly legislated Clean Water Act. Initially, the Secretary of the Interior and Reclamation were given the lead Federal role by the Congress. This testimony is in support of adequate funding for the title II program.

After a decade of investigative and implementation efforts, the Basin States concluded that the Salinity Control Act needed to be amended. The Congress revised the act in 1984. That revision, while leaving implementation of the salinity control policy with the Secretary of the Interior, also gave new salinity control responsibilities to the USDA and to the Bureau of Land Management (BLM). The Congress has charged the administration with implementing the most cost-effective program practicable (measured in dollars per ton of salt removed). The Basin States are strongly supportive of that concept as the Basin States cost share is 30 percent of Federal expenditures up-front for the salinity control program, in addition to proceeding to implement salinity control activities for which they are responsible in the Colorado River Basin.

The Forum is composed of gubernatorial appointees from Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming. The Forum has become the seven-

State coordinating body for interfacing with Federal agencies and the Congress to support the implementation of the program necessary to control the salinity of the river system. In close cooperation with the Environmental Protection Agency (EPA) and pursuant to requirements of the Clean Water Act, every 3 years the Forum prepares a formal report analyzing the salinity of the Colorado River, anticipated future salinity, and the program elements necessary to keep the salinities at or below the concentrations in the river system in 1972 at Imperial Dam, and below Parker and Hoover Dams.

In setting water quality standards for the Colorado River system, the salinity concentrations at these three locations have been identified as the numeric criteria. The plan necessary for controlling salinity and reducing downstream damages has been captioned the "Plan of Implementation." The 2008 Review of water quality standards includes an updated Plan of Implementation. The level of appropriation requested in this testimony is in keeping with the agreed upon plan. If adequate funds are not appropriated, significant damages from the higher salt concentrations in the water will be more widespread in the United States and Mexico.

JUSTIFICATION

The \$17.5 million requested by the Forum on behalf of the seven Colorado River Basin States is the level of funding necessary to proceed with Reclamation's portion of the Plan of Implementation. In July 1995, the Congress amended the Colorado River Basin Salinity Control Act. The amended act gives Reclamation new latitude and flexibility in seeking the most cost-effective salinity control opportunities, and it provides for utilization of proposals from project proponents, as well as more involvement from the private as well as the public sector. The result is that salt loading is being prevented at costs often less than one-half the cost under the previous program. The Congress recommitted its support for the revised program when it enacted Public Law 106-459. The Basin States' cost sharing up-front adds 43 cents for every Federal dollar appropriated. The federally chartered Colorado River Basin Salinity Control Advisory Council, created by the Congress in the Salinity Control Act, has met and formally supports the requested level of funding. The Basin States urge the Energy and Water Development Subcommittee to support the funding as set forth in this testimony.

ADDITIONAL SUPPORT OF FUNDING

In addition to the funding identified above for the implementation of the most recently authorized program, the Forum urges the Congress to appropriate funds requested by the administration to continue to maintain and operate salinity control facilities as they are completed and placed into long-term operation. Reclamation has completed the Paradox Valley unit which involves the collection of brines in the Paradox Valley of Colorado and the injection of those brines into a deep aquifer through an injection well. The continued operation of this project and the Grand Valley Unit will be funded primarily through the Facility Operations activity.

The Forum also supports funding to allow for continued general investigation of the Salinity Control Program as requested by the administration for the Colorado River Water Quality Improvement Program. It is important that Reclamation have planning staff in place, properly funded, so that the progress of the program can be analyzed, coordination between various Federal and State agencies can be accomplished, and future projects and opportunities to control salinity can be properly planned to maintain the water quality standards for salinity so that the Basin States can continue to develop their Colorado River Compact-apportioned waters.

PREPARED STATEMENT OF THE COLORADO RIVER COMMISSION OF NEVADA

Dear Chairman Dorgan: As a Nevada representative of the Colorado River Basin Salinity Control Forum, the Colorado River Commission of Nevada (CRCN) submits this written testimony in support of \$17.5 million for funding the fiscal year 2011 budget for the Bureau of Reclamation's Colorado River Basin Salinity Control Program. The CRCN urges the Congress to appropriate funds requested by the administration to continue to maintain and operate salinity control facilities as they are completed and placed into long-term operations. Reclamation has completed the Paradox Valley Unit which involves the collection of brines in the Paradox Valley of Colorado and the injection of those brines into a deep aquifer through an injection well. The continued operation of this project and the Grand Valley Unit will be funded primarily through the Facility Operations activity. The CRCN also supports funding to allow for continued general investigation of the Salinity Control Program

as requested by the administration for the Colorado River Water Quality Improvement Program.

Salinity remains one of the major problems in the Colorado River. Congress has recognized the need to confront this problem with its passage of Public Law 93-320 and Public Law 98-569. Your support of the Forum's current funding recommendations in support of the Colorado River Basin Salinity Control Program is essential to move the program forward so that the congressionally directed salinity objectives embodied in Public Law 93-320 and Public Law 98-569 are achieved.

PREPARED STATEMENT OF THE GRAND VALLEY WATER USERS ASSOCIATION

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE TRI-COUNTY WATER CONSERVANCY DISTRICT

Dear Chairman Dorgan and Senator Bennett: The Tri-County Water Conservancy District Board respectfully requests your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

We appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE WYOMING WATER ASSOCIATION

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives

are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE NATURE CONSERVANCY AND WESTERN RESOURCES
ADVOCATES

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

We appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF PNM RESOURCES, INC.

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARES STATEMENT OF THE ORCHARD MESA IRRIGATION DISTRICT

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE STATE OF WYOMING

Dear Chairman Dorgan and Senator Bennett: I am Requesting your support for the appropriation of \$8,354,000 to the Bureau of Reclamation included in the President's fiscal year 2011 recommended budget in the Upper Colorado Region budget line-item entitled "Endangered Species Recovery Implementation Program." This budget line-item designates \$800,000 for construction and construction management activities for the San Juan River Basin Recovery Implementation Program; \$7,154,000 for construction and construction management activities for the Upper Colorado River Endangered Fish Recovery Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy.

The Upper Colorado and San Juan recovery programs are highly successful collaborative conservation partnerships working to recover the four species of endemic Colorado River fish on the Federal endangered species list; while at the same time water use and development has been able to continue in our growing western communities. These programs are unique efforts involving the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. They are achieving Endangered Species Act (ESA) compliance for water projects and fully complying with interstate river compacts and the participating States' water law.

Since 1988, the two programs, collectively, have provided ESA section 7 compliance (without litigation) for over 1,850 Federal, tribal, State and privately managed water projects depleting more than 3.7 million acre-feet of water per year. The Department of the Interior recognized these programs with its nation-wide Cooperative Conservation Award in April 2008 as outstanding collaborative partnerships accomplishing substantial on-the-ground conservation results. Substantial non-Federal cost-sharing funding exceeding 50 percent is embodied in both programs.

As we do each year in support of these two region-wide cooperative recovery programs, the State of Wyoming again requests the subcommittee's assistance: it is absolutely essential that fiscal year 2011 funding be provided within the Bureau of Reclamation's budget appropriation to assure that agency's continued financial participation as directed by Public Law 106-392, as amended.

The State of Wyoming thanks you for the past support and assistance of your subcommittee; it has greatly facilitated the ongoing and continued success of these multi-state, multi-agency programs.

PREPARED STATEMENT OF THE STATE OF COLORADO

Dear Chairman Dorgan and Senator Bennett: I am Requesting your support for the appropriation of \$8,354,000 to the Bureau of Reclamation included in the President's fiscal year 2011 recommended budget in the Upper Colorado Region budget line-item entitled "Endangered Species Recovery Implementation Program." This budget line-item designates the following: \$800,000 for construction and construction management activities for the San Juan River Basin Recovery Implementation Program; \$7,154,000 for construction and construction management activities for the Upper Colorado River Endangered Fish Recovery Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy.

The Upper Colorado and San Juan recovery programs are highly successful collaborative conservation partnerships working to recover the four species of endemic Colorado River fish on the Federal endangered species list; while at the same time water use and development has been able to continue in our growing western communities. These programs involve New Mexico, Colorado, Utah and Wyoming, Indian tribes, multiple Federal agencies and water, power and environmental interests in providing Endangered Species Act (ESA) compliance for water projects in the region. They also fully complying with interstate river compacts and the participating States' water law.

Since 1988, the two programs have collectively provided ESA section 7 compliance (without litigation) for over 1,850 Federal, tribal, State and privately managed water projects. The Department of the Interior recognized these programs as outstanding collaborative partnerships with its nation-wide Cooperative Conservation Award in April 2008 accomplishing substantial on-the-ground conservation results. Substantial non-Federal cost-sharing funding, exceeding 50 percent, is embodied in both programs.

As I have done in the past, I am writing to support these two region-wide cooperative recovery programs. On behalf of the State of Colorado, I request the subcommittee's assistance. It is essential that fiscal year 2011 funding be provided within the Bureau of Reclamation's budget appropriation to assure that agency's continued financial participation, as directed by Public Law 106-392.

On behalf of the State of Colorado, I thank you for the continued support and assistance of your subcommittee; it has greatly facilitated the ongoing and continued success of these multi-state and multi-agency programs.

PREPARED STATEMENT OF THE STATE OF NEW MEXICO

Dear Chairman Dorgan and Senator Bennett: I am Requesting your support for the appropriation of \$8,354,000 to the Bureau of Reclamation included in the President's fiscal year 2011 recommended budget in the Upper Colorado Region budget line-item entitled "Endangered Species Recovery Implementation Program." This budget line-item designates \$800,000 for construction and construction management activities for the San Juan River Basin Recovery Implementation Program; \$7,154,000 for construction and construction management activities for the Upper Colorado River Endangered Fish Recovery Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy.

The Upper Colorado and San Juan recovery programs are highly successful collaborative conservation partnerships working to recover the four species of endemic Colorado River fish on the Federal endangered species list. These programs are unique efforts involving the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs provide Endangered Species Act (ESA) compliance for historic and developing water projects throughout the Upper Colorado River and San Juan River basins, and respect State water laws and interstate compacts. The requested fiscal year 2011 appropriation for the San Juan River recovery program includes funding to construct a fish screen to prevent entrainment of endangered fish by diversions for historic Navajo tribal water uses in New Mexico.

Since 1988, the two programs, collectively, have provided ESA section 7 compliance (without litigation) for over 1,850 Federal, tribal, State and privately managed water projects depleting more than 3.7 million acre-feet of water per year. The Department of the Interior recognized these programs with its nation-wide Cooperative Conservation Award in April 2008 as outstanding collaborative partnerships accomplishing substantial on-the-ground conservation results. Substantial non-Federal cost-sharing funding exceeding 50 percent is embodied in both programs.

The past support and assistance of your subcommittee has greatly facilitated the success of these multi-state, multi-agency programs. The State of New Mexico gratefully thanks you for that support. We again request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these two region-wide cooperative recovery programs as authorized and directed by Public Law 106-392, as amended.

PREPARED STATEMENT OF THE SAN JUAN WATER COMMISSION

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE CENTRAL UTAH WATER CONSERVANCY DISTRICT

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE COLORADO WATER CONGRESS

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE SOUTHERN UTE INDIAN TRIBE

Dear Chairman Dorgan and Senator Bennett: On behalf of the Southern Ute Indian Tribe, I am requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation ("Reclamation") within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation the tribe seeks on behalf of Reclamation is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, the Southern Ute Indian Tribe, the Ute Mountain Ute Indian Tribe, the Navajo Nation, and the Jicarilla Apache Nation, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

The tribe appreciates the subcommittee's past support and requests the subcommittee's assistance for fiscal year 2011 funding to ensure Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF DENVER WATER

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

 PREPARED STATEMENT OF THE COLORADO RIVER ENERGY DISTRIBUTORS ASSOCIATION (CREDA)

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

CREDA is a non-profit organization representing the majority of the firm electric service customers of the Colorado River Storage Project. CREDA has participated in these programs since inception, and power revenues have been a key funding source of the programs. These ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests are intended to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

We appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

 PREPARED STATEMENT OF THE JICARILLA APACHE NATION

Dear Chairman Dorgan and Senator Bennett: On behalf of the Jicarilla Apache Nation, I am requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

The Nation has been a voluntary participant in the highly successful and widely supported program to recover endangered fish species in the San Juan River basin since 1992 and fully supports the same effort underway in the Upper Colorado River. More than 1,800 Federal, tribal and non-Federal water projects are involved in the recovery efforts, these actions have resulted in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE SOUTHWESTERN WATER CONSERVATION DISTRICT

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE UNCOMPAHGRE VALLEY WATER USERS ASSOCIATION

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE NORTHERN COLORADO WATER CONSERVANCY DISTRICT

Dear Chairman Dorgan and Senator Bennett: On behalf of the Board of Directors of the Northern Colorado Water Conservancy District (Northern Water), I am requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the U.S. Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming; Indian tribes; Federal agencies; and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water usage and development continue in compliance with the Endangered Species Act.

Northern Water appreciates the subcommittee's past support and requests the subcommittee's assistance for fiscal year 2011 funding to ensure the U.S. Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF AURORA WATER

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE COLORADO RIVER BOARD OF CALIFORNIA

This testimony is in support of fiscal year 2011 funding for the Department of the Interior for the title II Colorado River Basin Salinity Control Program (Public Law 93-320). By statute, Congress designated the Department of the Interior, Bureau of Reclamation (Reclamation) to be the lead agency for salinity control in the Colorado River Basin. This successful and cost effective program is carried out pursuant to the Colorado River Basin Salinity Control Act and the Clean Water Act (Public Law 92-500). California's Colorado River water users are presently suffering economic damages in the hundreds of million of dollars per year due to the River's salinity.

The Colorado River Board of California (Colorado River Board) is the State agency charged with protecting California's interests and rights in the water and power resources of the Colorado River system. In this capacity, California and the other six basin States through the Colorado River Basin Salinity Control Forum (Forum), the interstate organization responsible for coordinating the basin States' salinity control efforts, established numeric criteria in June 1975 for salinity concentrations in the River. These criteria were established to lessen the future damages in the Lower Basin States, as well as, assist the United States in delivering water of adequate quality to Mexico in accordance with Minute 242 of the International Boundary and Water Commission.

To date, Reclamation has been successful in implementing projects for preventing salt from entering the River system; however, many more potential projects for salt reduction have been identified that could be implemented through Reclamation's Basin-wide Salinity Control Program. In the past, the Forum has presented testimony to Congress in which it has stated that the rate of implementation of the program beyond that which has been funded in the past is essential. This is still the case, and California urges the Congress to fully fund Reclamation's continuing implementation of this critical program.

In 2000, Congress reviewed the salinity control program as authorized in 1995. Following hearings, and with the administration's support, the Congress passed legislation (Public Law 106-459) that increased the ceiling authorization for this program from \$75 million to \$175 million. Reclamation has received proposals to move the program ahead and the seven basin States have agreed to up-front cost sharing on an annual basis, which adds 43 cents for every Federal dollar appropriated.

In recent years, the Bureau of Reclamation's Basin-wide Salinity Control Program funding has dropped to below \$10 million. In the judgment of the Forum, this amount is inappropriately low. Water quality commitments to downstream U.S. and Mexican water users must be honored while the basin States continue to develop their Compact apportioned waters from the Colorado River. Concentrations of salts in the River cause about \$376 million in quantified damage in the United States. However significant un-quantified damages also, occur. For example, damages occur from:

—A reduction in the yield of salt sensitive crops and increased water use for leaching in the agricultural sector;

- A reduction in the useful life of galvanized water pipe systems, water heaters, faucets, garbage disposals, clothes washers, and dishwashers, and increased use of bottled water and water softeners in the household sector;
- An increase in the use of water for cooling, and the cost of water softening, and a decrease in equipment service life in the commercial sector;
- An increase in the use of water and the cost of water treatment, and an increase in sewer fees in the industrial sector;
- A decrease in the life of treatment facilities and pipelines in the utility sector;
- Difficulty in meeting wastewater discharge requirements to comply with National Pollutant Discharge Elimination System permit terms and conditions, an increase in desalination and brine disposal costs due to accumulation of salts in groundwater basins, and fewer opportunities for recycling and reuse of the water due to groundwater quality deterioration; and
- Increased use of imported water for leaching and the cost of desalination and brine disposal for recycled water.

For every 30 milligram per liter increase in salinity concentrations, there are \$75 million in additional damages in the United States. The Forum, therefore, believes implementation of the program needs to be accelerated to a level beyond that which has been requested by the administration for the past recent years.

Some of the most cost-effective salinity control opportunities occur when Reclamation can improve irrigation delivery systems in a coordinated fashion with the activities of the U.S. Department of Agriculture's (USDA) program through working with landowners (irrigators) to improve on-farm irrigation systems. With the USDA's Environmental Quality Incentive Program, more on-farm funds are available and adequate funds for Reclamation are needed to maximize Reclamation's effectiveness in addressing water delivery system improvements. The Advisory Council, at its meeting in October 2009, in Phoenix, Arizona, recommended a funding level of \$17,500,000 for Reclamation's Basin-wide Salinity Control Program to continue implementation of needed projects.

In addition, the Colorado River Board recognizes that the Federal Government has made significant commitments to the Republic of Mexico and to the seven Colorado River Basin States with regard to the delivery of quality water to Mexico. In order for those commitments to be honored, it is essential that in fiscal year 2011, and in future fiscal years, that Congress provide funds to the Bureau of Reclamation for the continued operation of completed projects.

The Colorado River is, and will continue to be, a major and vital water resource to the 18 million residents of southern California, including municipal, industrial, and agricultural water users in Ventura, Los Angeles, San Bernardino, Orange, Riverside, San Diego, and Imperial counties. Preservation and improvement of Colorado River water quality through an effective salinity control program will avoid the additional economic damages to users in California and the other States that rely on the Colorado River.

PREPARED STATEMENT OF THE IRRIGATION AND ELECTRICAL DISTRICTS ASSOCIATION
OF ARIZONA

The Irrigation and Electrical Districts Association of Arizona (IEDA) is pleased to present written testimony regarding the fiscal year 2011 proposed budgets for the Bureau of Reclamation (Reclamation) and the Western Area Power Administration (Western).

IEDA is an Arizona nonprofit association whose 26 members and associate members receive water from the Colorado River directly or through the facilities of the Central Arizona Project (CAP) and purchase hydropower from Federal facilities on the Colorado River either directly from Western or, in the case of the Boulder Canyon Project, from the Arizona Power Authority, the State agency that markets Arizona's share of power from Hoover Dam. IEDA was founded in 1962 and continues to represent water and power interests of Arizona political subdivisions and other public power providers and their consumers.

BUREAU OF RECLAMATION

IEDA has reviewed the Reclamation budget and found, not unexpectedly, that it does not address the enormous backlog of needs of the agency's aging infrastructure. We are aware, for example, that the Imperial Dam Electrification Project needs \$5 million, money that will be repaid to the Treasury with interest. However, we do support important projects and programs that are included in the proposed budget. We are especially mindful that the Yuma Desalting Plant is undergoing a pilot project, which is an essential element of the problem solving mechanisms being put

in place for the Colorado River and especially the Lower Colorado River. Problem solving on the Lower Colorado River will be substantially improved by using the plant as a management element.

We also wish to call to the subcommittee's attention the issue concerning increased security costs at Reclamation facilities post-9/11. Legislation has passed Congress addressing that issue and a budget approved for Reclamation for fiscal year 2011 should reflect that this legislation became law and affects Reclamation operations. We believe security costs under that legislation should be reduced because of a declining Consumer Price Index.

WESTERN AREA POWER ADMINISTRATION

IEDA has reviewed the testimony submitted by Western's administrator, Tim Meeks. We note that both this subcommittee and the Senate Energy and Natural Resources Committee Water and Power Subcommittee have a concern over the limited appropriation for construction funding proposed for fiscal year 2011. We believe this shortfall is irresponsible. Western has over 15,000 miles of transmission line for which it is responsible. It has on the order of 14,000 megawatts of generation being considered for construction that would depend on that Federal network. The existing transmission facilities cannot handle all of these proposals. Moreover, the region is projected, by all utilities operating in the region, to be short of available generation in the 10-year planning window that utilities and Western use.

The appropriation proposed in this category cannot come even close to keeping existing transmission construction going. Repairs and replacements will have to be postponed and considerable hardships to local utilities that depend on the Federal network are bound to occur. In Western's Desert Southwest Region, our region, work necessary just to maintain system reliability will have to be postponed.

We would be the first to support additional customer financing of Federal facilities and expenses through the Contributed Funds Act authority under Reclamation law that is available to Western. However, programs utilizing non-Federal capital formation require years to develop. One such program proposed by the Arizona Power Authority in a partnership with Western died because it was enmeshed in bureaucratic red tape at the Department of Energy. There is no way that Western customers can develop contracts, have them reviewed, gain approval of these contracts from Western and their own governing bodies, find financing on Wall Street and have monies available for the next fiscal year. It is just impossible, especially in this economy.

There are impediments to using existing Federal laws to facilitate non-Federal financing for construction of Federal electric transmission facilities and Congress should eliminate them. In the meantime, artificially designating customer funding for construction, in lieu of real solutions, is bad public policy and should not be countenanced. We urge the subcommittee to restore a reasonable amount of additional construction funding to Western so it can continue to do its job in keeping its transmission systems functioning and completing the tasks that it has in the pipeline that are critical to its customers throughout the West.

CONCLUSION

Thank you for the opportunity to submit this written testimony. If we can provide any additional information or be of any other service to the subcommittee, please do not hesitate to get in touch with us.

PREPARED STATEMENT OF APS

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives

are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE DOLORES WATER CONSERVANCY DISTRICT

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF COLORADO SPRINGS UTILITIES

Dear Chairman Dorgan and Senator Bennett: We are requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106-392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE OGLALA SIOUX RURAL WATER SUPPLY SYSTEM, WEST RIVER/LYMAN JONES RURAL WATER SYSTEM, ROSEBUD RURAL WATER SYSTEM, AND THE LOWER BRULE RURAL WATER SYSTEM

FISCAL YEAR 2011 REQUEST

The Mni Wiconi Project beneficiaries respectfully request \$37.222 million in appropriations for construction and \$11.093 million for operation and maintenance (OMR) activities for fiscal year 2011, a total request of \$48.315 million:

FISCAL YEAR 2011 TOTAL REQUEST

	Amount
Construction	\$37,222,000
OMR	11,093,000
Total	48,315,000

The construction request includes \$1.0 million for Bureau of Reclamation oversight, and the OMR request includes \$1.447 million for Bureau of Reclamation oversight.

CONSTRUCTION FUNDS

Construction funds would be utilized as follows:

Project Area	Construction Request Fiscal Year 2011
Ogala Sioux Rural Water Supply System:	
Core	(¹)
Distribution	\$22,069,000
Wesr River/Lyman-Jones RWS	3,719,000
Rosebud RWS	11,434,000
Total	37,222,000

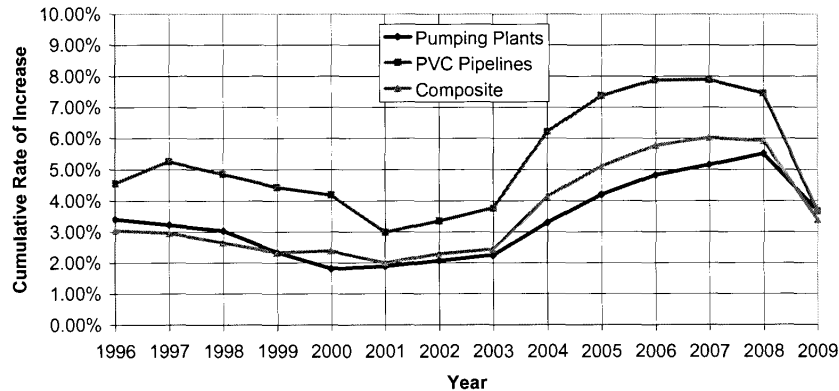
Complete.

As shown in the table below, the project will be 88 percent complete at the end of fiscal year 2010. Construction funds remaining to be spent after fiscal year 2010 will total \$54.518 million within the current authorization (in October 2009 dollars). Additional administrative and overhead costs of extending the project, additional construction costs, and inflation at 3.7 percent over the next 3 years are expected to increase remaining project costs to \$111.667 million after fiscal year 2010.

Total Federal Construction Funding (Oct 2009 dollars)	\$460,014,364
Estimated Federal Spent Through Fiscal Year 2010	\$405,496,000
Percent Spent Through Fiscal Year 2010	88.15
Amount Remaining after 2010:	
Total Authorized (Oct 2009 dollars)	\$54,518,364
Adjusted for Extension to Fiscal Year 2013 and Other Cost	\$103,958,000
Adjusted for Annual Inflation	\$111,667,000
Completion Fiscal Year (Statutory Fiscal Year 2013; Public Law 111-161)	2013
Year to Complete	3
Average Annual Required for Finish in Fiscal Year 2013	\$37,222,000

Cost indexing over the last 5 years has averaged 3.66 percent for pipelines, primarily due to a 7.7 percent reduction last year during recession. Pipelines are the principal components yet to be completed (see chart below). Assuming average 3.66 percent inflation in construction costs over the remaining 3 years, average funding of \$37.222 million is required.

**RATE OF CONSTRUCTION COST INCREASE
FOR ANNUAL AND 5-YEAR RUNNING AVERAGES SINCE 1992,
US BUREAU OF RECLAMATION**



This is an increase in the annual rate of appropriations needed to complete the project since last year's estimate of \$31.4 million. Appropriations were limited to \$22 million last year, which increases the average annual rate of funding needed to complete in 2013 on the statutory schedule.

The request will create an estimated 298 full-time equivalent (FTE) construction jobs and 89 OMR jobs in an area of the Nation with the lowest per capita income and deepest poverty.

OGLALA SIOUX RURAL WATER SUPPLY SYSTEM (OSRWSS)

Core System

The Oglala Sioux Tribe has completed the core system. The completion of the OSRWSS core system was an historic milestone and permits greater focus in remaining years of the Project on completion of the distribution systems.

Distribution System

The Pine Ridge Indian Reservation will receive significantly more water from the OSRWSS core system in fiscal year 2010. This is another historic year, but considerable work remains to distribute the water supply throughout the reservation. Over 40 percent of the project's population resides on the Pine Ridge Indian Reservation, and only 52 percent of the distribution system is complete. The reservation public received its first Missouri River supply in small amounts in 2009 after waiting 15 years for construction of core facilities to the reservation.

Project funds in fiscal year 2011 will continue building the on-reservation transmission system between the community of Wounded Knee and Pine Ridge Village. The latter community is the largest on the reservation and the point of greatest demand. Funding will also be used for transmission and service line development east of Pine Ridge Village toward Wakpamni, Batesland and Allen and south toward the Nebraska State line where groundwater is the most feasible water source for the future. This area has been deferred in the past due to funding constraints.

Delivery of Missouri River water to Kyle in fiscal year 2010, delayed due to funding, will allow distribution to completed OSRWSS pipelines that serve the communities of Kyle, Sharps Corner, Rocky Ford, Red Shirt, Manderson, Evergreen and Porcupine and the large number of rural homes between the communities along these pipelines. Fiscal year 2011 funds will be used to extend service south of Wanblee to Hisle.

As set forth above, activity on the Pine Ridge Indian Reservation in fiscal year 2011 continues to focus on constructing the transmission system that serves as the "backbone" of the project on the reservation from the White River in the northeast corner of the reservation to Pine Ridge Village. The tribe will continue focus on the disinfection requirements to blend Missouri River water and high quality groundwater without creating harmful contaminants. State-of-the-art designs are being im-

plemented for water quality control and SCADA systems, and the project will serve as a model for other projects requiring these facilities.

The Oglala Sioux Tribe is supportive of the funding request of other sponsors.

WEST RIVER/LYMAN-JONES RURAL WATER SYSTEM

West River/Lyman-Jones RWS projects for fiscal year 2011 include standby generation facilities, conversion of community water systems, storage reservoirs, SCADA, and cold storage additions.

The Upper Midwest and specifically the Mni Wiconi Project area regularly experience power outages as the result of winter weather conditions. Regulatory authorities in South Dakota have recommended standby generation as the result of statewide power outages experienced during the winters of 2005–2006 and 2009–2010. The Bureau of Reclamation has concurred in the addition of standby generation to the Mni Wiconi plan of work. WR/LJ has outlined a 3 year standby generation project schedule.

The WR/LJ project includes four areas in which area ranchers are served by a common well of limited capacity and unacceptable water quality. The construction of WR/LJ facilities to serve them as individual members of WR/LJ will provide the pipeline capacity and water quality meeting Mni Wiconi project design standards.

Water storage needs include an elevated tower in the Reliance service area, a ground storage reservoir in Mellette County and supplemental storage in the Elbon service area.

System Control and Data Acquisition (SCADA) capability provides accurate and efficient transmission of data and allows remote control of pumping and storage facilities. The WR/LJ SCADA system will be completed using the requested funding.

Storage facilities at the Murdo and Philip operations centers will complete the building components of the WR/LJ project.

Previous Federal appropriations to the Mni Wiconi Project have made possible the delivery of much needed quality water to members of the West River/Lyman-Jones RWS and to the livestock industry in the project area. This would not have been possible with State and Federal assistance.

ROSEBUD SIOUX RURAL WATER SYSTEM—FISCAL YEAR 2011

In fiscal year 2011 work on the Rosebud Sioux Rural Water System (RSRWS or Sicangu Mni Wiconi) focuses on supplying high quality water to southern Todd County. It was hoped that this area of the Rosebud Reservation would not need to be connected to the Mni Wiconi Project because of the presence of the Ogallala aquifer. The estimated demands for the area were however included in system planning and it now appears this foresight was beneficial because portions of the aquifer have high nitrates and other areas are not as high yielding as originally thought.

Because of quality and quantity limitations of the aquifer, high quality surface water from the OSRWSS will be conveyed by a transmission pipeline to a new elevated storage reservoir at Sicangu Village. The elevated reservoir is being constructed in fiscal year 2010 with ARRA funds. Sicangu Village is an expanding housing area and the local wells cannot meet the demands associated with expansion. The transmission line and elevated reservoir will provide a reliable supply of high quality water to the development corridor centered on Highway 83 between Mission and Sicangu Village.

The other major projects will extend service to two schools in southern Todd County. The wells that supply water to the schools have high nitrates. The Mni Wiconi Project will ensure that future generations on the Rosebud Reservation, both Indians and non-Indians alike, will be supplied with water that meets safe drinking water standards.

While supply to meet the demands in southern Todd County was included as a contingency in the tribe's Needs Assessment and the Mni Wiconi Final Engineering Report, costs of infrastructure were not. In order to supply these schools, other areas may not be served unless an amendment authorizing an increase in the project ceiling and extending the sunset date is enacted.

The ongoing effort to connect rural homes to transmission and distribution lines will also continue in 2011. This work is undertaken through the tribe's force account program that not only provides a reliable source of high quality water to rural homes but also provides employment to numerous tribal members and helps circulate dollars on the reservation thereby stimulating the local economy.

OMR

The Sponsors will continue to work with Reclamation to ensure that their budgets are adequate to properly operate, maintain and replace (OMR) respective portions

of the core and distribution systems. The Sponsors will also continue to manage OMR expenses to ensure that the limited funds can best be balanced between Construction and OMR.

The project is treating and delivering more water each year from the OSRWSS Water Treatment Plant near Fort Pierre as construction advances in the Rosebud, WRLJ and Oglala service areas. Completion of significant core and distribution pipelines has resulted in more deliveries to more communities and rural users. The need for sufficient funds to properly operate and maintain the functioning system throughout the project has grown as the project has now reached 88 percent completion. The OMR budget must be adequate to keep pace with the system that is placed in operation.

The Lower Brule Rural Water System (LBRWS) is essentially complete with all major components such as the water treatment plant, booster stations and tanks/reservoirs in full operation. As a result, LBRWS's operation and maintenance portion of the budget has reached a baseline amount to which only slight adjustments along with inflation should be made each year. The portion of the LBRWS OMR&R budget that is somewhat variable is the Replacement Additions and Extraordinary (RAX) maintenance items. LBRWS will continue to work with the Bureau of Reclamation and the other sponsors to prioritize their needs and ensure that their system is operating to the standards that have been established over the past several years. With that in mind, the LBRWS request for OMR for fiscal year 2011 is \$1,550,000.

The Mni Wiconi Project tribal beneficiaries (as listed below) respectfully request appropriations for OMR in fiscal year 2011 in the amount of \$11.093 million.

FISCAL YEAR 2011 OMR

Project Area	Request
Oglala Sioux Rural Water Supply System:	
Core	\$2,719,000
Distribution	3,100,000
Lower Brule	1,550,000
Rosebud RWS	2,277,000
Reclamation	1,447,000
Total	11,093,000

TRUST RESPONSIBILITY

Public Law 100–516, the Mni Wiconi Project Act, provides that “. . . United States has a trust responsibility to ensure that adequate and safe water supplies are available to meet the economic, environmental, water supply, and public health needs of the . . . Indian reservation[s] . . .”

The field staff and the Regional Office of the Bureau of Reclamation have been extremely helpful in advancing this project, but there is growing concern that Reclamation mid-managers are making unilateral decisions that harm the trust relationship. We are also concerned with the manner of budgeting. The following are specific instances:

- Reclamation has re-distributed funds allocated to the Oglala Sioux Tribe to West River/Lyman Jones without the urging of West River Lyman Jones to further Reclamation performance objectives. While OSRWSS has consistently carried funds over from one fiscal year to another, there has never been an instance or a threat of an instance of not spending funding appropriated in the same year and the year that follows. The Oglala Sioux Tribe strongly feels that this hampers the ability of the OSRWSS to complete the OSRWSS distribution system prescribed by the statutory completion date.
- To our complete satisfaction on construction, Reclamation has yielded to the leadership of the Indian and non-Indian sponsors to permit their collaborative development of annual funding allocations and budgets. On the other hand, Reclamation has imposed its structure and budget specifics in lieu of Indian leadership on the formulation of annual OMR allocations and budgets;
- Reclamation has prioritized total budgeted funds with a separation between Construction and OMR accounts based on its trust responsibility for OMR, which constrains the budgeted funds available to complete construction. OMR budgeting has been held relatively constant with higher percentages of construction completion, and construction budgeting has decreased. The fixed level of OMR funding has constrained the activities needed on the Indian distribution

systems. The construction budget is diminishing at a time when acceleration of construction is needed to deliver the benefits of the project to the Indian people. At a minimum, the construction budget should be a priority and should be held at a level needed to complete the project on the statutory schedule in 2013 while providing an adequate OMR budget. The trust responsibility for ensuring adequate and safe water supplies for the reservations involved necessarily includes both the construction and OMR activities;

- Mid-level managers often view the project as a Reclamation project, rather than as an Indian project as provided by Public Law 100–516, and their vision is affected.

PREPARED STATEMENT OF THE COLORADO RIVER WATER CONSERVATION DISTRICT

Dear Chairman Dorgan and Senator Bennett: I am requesting your support for an appropriation in the President's recommended budget for fiscal year 2011 of \$8,354,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The funding designation we seek is as follows: \$7,154,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; \$800,000 for construction activities for the San Juan River Basin Recovery Implementation Program; and \$400,000 for Fish and Wildlife Management and Development activities to avoid jeopardy. This funding is authorized by Public Law 106–392, as amended.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species in compliance with the Endangered Species Act, while maintaining water use and development.

I appreciate the subcommittee's past support and request the subcommittee's assistance for fiscal year 2011 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE SAN DIEGO COUNTY WATER AUTHORITY

Dear Chairman Dorgan: Your support is needed to secure adequate fiscal year 2011 funding for the U.S. Bureau of Reclamation's participation in the Federal/State Colorado River Basin Salinity Control Program. Reclamation is the lead agency for this successful and cost-effective program, which mitigates problems caused by excess salinity in the Colorado River.

The Colorado River is the primary source of drinking and irrigation water for more than 3 million people in San Diego County. Excess salinity causes economic damages in the San Diego region worth millions of dollars annually. It also hinders local water agency efforts to stretch limited supplies by recycling and reusing water. The local impacts of excess salinity include:

- Reduced crop yields for farmers, who produce more than \$1 billion of agricultural products in the San Diego region;
- Reduced useful life of commercial and residential water pipe systems, water heaters, faucets, garbage disposals, clothes washers, and dishwashers;
- Increased household use of expensive bottled water and water softeners;
- Increased water treatment facility costs;
- Difficulty meeting Federal and California wastewater discharge requirements; and
- Fewer opportunities for water recycling due to excess salt in the product water, which limits usefulness for commercial and agricultural irrigation.

Reclamation has been successful in implementing projects that prevent salt from entering the river system. Additional projects for salt reduction have been identified that could further improve river water quality. Some of the most cost-effective salinity control opportunities occur when Reclamation can improve irrigation delivery systems at the same time that the U.S. Department of Agriculture's (USDA) program is working with landowners (irrigators) to improve the on-farm irrigation systems. Adequate funding is needed to maximize Reclamation's effectiveness.

The Colorado River Basin Salinity Control Forum, the interstate organization responsible for coordinating the seven Colorado River Basin States' salinity control efforts, in October 2009 recommended a funding level of \$17,500,000 for Reclamation's Basin-wide salinity control program for fiscal year 2011. This funding would allow Reclamation to continue its coordinated efforts to reduce salinity in the Colorado River. The Water Authority agrees with the Forum's recommendation, and urges

your support for these needed funds. The seven Colorado River Basin States are sharing costs for salinity control, contributing 43 cents for every appropriated Federal dollar.

The Water Authority appreciates your support of the Colorado River Basin Salinity Control Program and asks for your assistance in securing adequate funding for fiscal year 2011.

PREPARED STATEMENT OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Dear Senator Dorgan: The Metropolitan Water District of Southern California (Metropolitan) has adopted a position supporting funding for the Bureau of Reclamation's Colorado River Basin Salinity Control Title II Program.

For 70 years Metropolitan has provided imported water to the Southern California region from the Colorado River and the State Water Project originating in Northern California. Our mission is to provide high quality, reliable drinking water supplies primarily for municipal and industrial use. Metropolitan is the Nation's largest provider of imported water to an urban area. The population today in our service area is 19 million and it is projected to rise to 25 million within the next 25 years. Metropolitan is comprised of 26 member public agencies that serve an area spanning 5,200 square miles and 6 southern California counties.

Water imported via the Colorado River Aqueduct (CRA) has the highest salinity of Metropolitan's imported sources of supply, averaging around 630 milligrams per liter since 1976 and causing economic damages. For example, damages occur from:

- A reduction in the yield of salt sensitive crops and increased water use for leaching in the agricultural sector;
- A reduction in the useful life of galvanized water pipe systems, water heaters, faucets, garbage disposals, clothes washers, and dishwashers, and increased use of bottled water and water softeners in the household sector;
- An increase in the use of water for cooling, and the cost of water softening, and a decrease in equipment service life in the commercial sector;
- An increase in the cost of water treatment and sewer fees in the industrial sector;
- A decrease in the life of treatment facilities and pipelines in the utility sector;
- Difficulty in meeting wastewater discharge requirements to comply with National Pollutant Discharge Elimination System permit terms and conditions, and an increase in desalination and brine disposal costs due to accumulation of salts in groundwater basins, and fewer opportunities for recycling due to groundwater quality deterioration;
- Increased use of imported water for leaching; and
- Increased cost of desalination and brine disposal for recycled water.

Concern over salinity levels in the Colorado River has existed for many years. To deal with the concern, the International Boundary and Water Commission approved Minute No. 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River in 1973, and the President approved the Colorado River Basin Salinity Control Act in 1974. High total dissolved solids in the Colorado River as it entered Mexico and the concerns of the seven Colorado River Basin States regarding the quality of Colorado River water in the United States drove these initial actions. To foster interstate cooperation on this issue and coordinate the Colorado River Basin States' efforts on salinity control, the seven basin States formed the Colorado River Basin Salinity Control Forum (Forum).

The salts in the Colorado River system are indigenous and pervasive, mostly resulting from saline sediments in the basin that were deposited in prehistoric marine environments. They are easily eroded, dissolved, and transported into the river system.

The Colorado River Basin Salinity Control Program reduces salinity by preventing salts from dissolving and mixing with the River's flow. Irrigation improvements (sprinklers, gated pipe, lined ditches) and vegetation management reduce the amount of salt transported to the Colorado River. Point sources such as saline springs are also controlled. The Federal Government, basin States, and contract participants spend close to \$50 million annually on salinity control programs.

The Program, as set forth in the act, benefits both the Upper Colorado River Basin water users through more efficient water management and the Lower Basin water users, hundreds of miles downstream from salt sources in the Upper Basin, through reduced salinity concentration of Colorado River water. California's Colorado River water users are presently suffering economic damages in the hundreds of millions of dollars per year due to the river's salinity.

By some estimates, concentrations of salts in the Colorado River cause approximately \$350 million in quantified damages in the lower Colorado River Basin States each year and significantly more in unquantified damages. Salinity control projects have reduced salinity concentrations of Colorado River water on average by over 100 milligrams per liter with an economic benefit of \$264 million per year (2005 dollars) in avoided damages.

In recent years, the Bureau of Reclamation Basin-wide Salinity Control Program funding has dropped to below \$10 million. In the judgment of the Forum, this amount is inappropriately low. Water quality commitments to downstream U.S. and Mexican water users must be honored while the Upper Basin States continue to develop their Compact apportioned waters from the Colorado River.

Metropolitan urges this subcommittee to support funding for the Colorado River Basin Salinity Control Program for fiscal year 2011 of \$17.5 million for the Department of the Interior—Bureau of Reclamation's Basin-wide Salinity Control Program for the Colorado River Basin Salinity Control Program.

Over the past years, the Colorado River Basin Salinity Control program has proven to be a very cost effective approach to help mitigate the impacts of increased salinity in the Colorado River. Continued Federal funding of this important basin-wide program is essential.

I would appreciate it if you make this statement a part of the formal hearing record concerning fiscal year 2011 appropriations for the Bureau of Reclamation. I thank you for your subcommittee's support of this program in years past and hope that you will again support funding to continue this valuable program.

PREPARED STATEMENT OF THE NEW MEXICO STATE ENGINEER AND SECRETARY, NEW MEXICO INTERSTATE STREAM COMMISSION

SUMMARY

This statement is submitted in support of fiscal year 2011 appropriations for the Colorado River Basin Salinity Control Program of the Department of the Interior's Bureau of Reclamation (Reclamation). Congress designated Reclamation to be the lead agency for salinity control in the Colorado River Basin by the Colorado River Basin Salinity Control Act of 1974, and reconfirmed Reclamation's role by passage of Public Law 104–20. A total of \$17.5 million is requested for fiscal year 2011 to implement the authorized salinity control program of the Bureau of Reclamation. Recent years have followed a trend of inadequate funding for the needs of the program. An appropriation of \$17.5 million for Reclamation's salinity control program is necessary to restore the program to the level needed to protect water quality standards for salinity and to prevent unnecessary levels of economic damage from increased salinity in water delivered to the Lower Basin States of the Colorado River. In addition, funding for operation and maintenance of existing projects and sufficient general investigation funding is required to identify new salinity control opportunities.

STATEMENT

The water quality standards for salinity of the Colorado River must be protected while the basin States continue to develop their compact apportioned waters of the river. The salinity standards for the Colorado River have been adopted by the seven basin States and approved by the Environmental Protection Agency. While currently the standards have not been exceeded, salinity control projects must be brought online in a timely and cost-effective manner to prevent future effects that could result in unnecessary damages from higher levels of salinity in the water delivered to the Lower Basin States of the Colorado River.

The Colorado River Basin Salinity Control Act was authorized by Congress and signed into law in 1974. The seven Colorado River Basin States, in response to the Clean Water Act of 1972, formed the Colorado River Basin Salinity Control Forum (Forum), a body comprised of gubernatorial representatives from the seven States. The Forum was created to provide for interstate cooperation in response to the Clean Water Act and to provide the States with information necessary to comply with sections 303(a) and (b) of the act. The Forum has become the primary means for the basin States to coordinate with Federal agencies and Congress to support the implementation of the salinity control program for the Colorado River Basin.

Bureau of Reclamation studies show that quantified damages from the Colorado River to U.S. water users are about \$350 million per year. Unquantified damages are significantly greater. Damages are estimated at \$75 million per year for every additional increase of 30 milligrams per liter in salinity of the Colorado River. Con-

trol of salinity is necessary for the States of the Colorado River Basin, including New Mexico, to continue to develop their compact-apportioned waters of the Colorado River.

Timely appropriations for the funding of the salinity control program are essential to comply with the water quality standards for salinity, prevent unnecessary economic damages in the United States, and protect the quality of the water that the United States is obligated to deliver to Mexico. The basin States and Federal agencies agree that increases in the salinity of the Colorado River will result in significant increases in damages to water users in the Lower Colorado River Basin. Although the United States has always met the water quality standard for salinity of water delivered to Mexico under Minute No. 242 of the International Boundary and Water Commission, the United States through the U.S. section of IBWC is currently addressing a request by Mexico for better quality water. Continued strong support and adequate funding of the salinity control program is required to control salinity-related damages in the United States and Mexico.

Congress amended the Colorado River Basin Salinity Control Act in July 1995 (Public Law 104-20). The salinity control program authorized by Congress by the amendment has proven to be very cost-effective, and the Basin States are standing ready with up-front cost-sharing. Proposals from public and private sector entities in response to Reclamation's requests for proposals and funding opportunity announcements have far exceeded available funding appropriated in recent years. Basin States cost-sharing funds are available for the \$17.5 million appropriation request for fiscal year 2011. The basin States' cost-sharing adds 43 cents for each Federal dollar appropriated.

Public Law 106-459 gave the Bureau of Reclamation additional spending authority for the salinity control program. With the additional authority in place and significant cost-sharing available from the basin States, it is essential that the salinity control program be funded at the level requested by the Forum and basin States to protect the water quality of the Colorado River. Some of the most cost-effective salinity control opportunities occur when Reclamation improves irrigation delivery systems concurrently with on-farm irrigation improvements undertaken by the U.S. Department of Agriculture's Environmental Quality Incentives Program (EQIP). The basin States cost-share funding is available for both on-farm and off-farm improvements. The EQIP funding appears to be adequate to accomplish the on-farm work. Adequate funding for Reclamation's off-farm work is needed to maintain timely implementation and effectiveness of salinity control measures.

Maintenance and operation of Reclamation's salinity control projects and general investigations to identify new cost-effective salinity control projects are necessary for the continued success of the salinity control program. Investigation of new opportunities for salinity control is critical while the basin States continue to develop and use their compact-apportioned waters of the Colorado River. The water quality standards for salinity are dependent on timely implementation of salinity control projects, adequate funding to maintain and operate existing projects, and sufficient general investigation funding to determine new cost-effective opportunities for salinity control.

Continued funding primarily through Reclamation's Facility Operation activity to support maintenance and operation the Paradox Valley Unit and the Grand Valley Unit is critically needed. General Investigation funding through Reclamation's Colorado River Water Quality Improvement Program needs to be restored to a level that supports the need for identification and study of new salinity control opportunities to maintain the levels of salinity control needed to meet water quality standards and control economic damages in the Lower Colorado River Basin.

I urge the Congress to appropriate \$17.5 million to the Bureau of Reclamation for the Colorado River Basin Salinity Control Program, plus adequate funding for operation and maintenance of existing projects and adequate funding for general investigations to identify new salinity control opportunities. Also, I fully support testimony by the Forum's Executive Director, Jack Barnett, in request of this appropriation, and the recommendation of an appropriation of the same amount by the Federal chartered Colorado River Basin Salinity Control Advisory Council.

PREPARED STATEMENT OF THE WYOMING STATE ENGINEER'S OFFICE

Dear Chairman Dorgan and Ranking Member Domenici: This letter is sent in support of fiscal year 2011 funding for the Bureau of Reclamation's Colorado River Basin Salinity Control Project—Title II Program. A total of \$17.5 million is requested for Reclamation's fiscal year 2011 activities to implement authorized Colorado River Basin salinity control program programs. Failure to appropriate these

funds will directly result in significant economic damages being accrued by U.S. and Mexican water users.

The State of Wyoming also supports funding for Salinity Control Program general investigations as requested within the Colorado River Water Quality Improvement Program budget line-item. It is important that Reclamation have properly funded planning staff in place, so that the program's progress can be monitored, necessary coordination among Federal and State agencies can be accomplished, and future projects and opportunities to control salinity can be properly planned. Maintaining the water quality standards for salinity in the Colorado River is essential so as to allow the seven Colorado River Basin States to continue to develop their compact-apportioned waters of the Colorado River.

In addition to the funding identified above for the implementation of the most recently authorized program, the State of Wyoming urges the Congress to appropriate funds, as requested by the administration, to maintain and operate completed salinity control facilities, including the Paradox Valley Unit. At facilities located within the Paradox Valley of Colorado subsurface saline brines are collected below the Delores River and are injected into a deep aquifer through an injection well. The continued operation of this project, and the Grand Valley Unit, are funded primarily through the Facility Operations activity.

The Colorado River provides municipal and industrial water for over 30 million people and irrigation water to nearly 4 million acres of land in the United States. The River is also the water source for some 2.5 million people and 500,000 acres in Mexico. Limitations on water users' abilities to make the greatest use of this critically important water supply on account of the River's high concentration of total dissolved solids (hereafter referred to as the salinity of the water) are a major concern in both the United States and Mexico. Salinity in water supplies affects agricultural, municipal, and industrial water users.

While economic detriments and damages in Mexico are unquantified, the Bureau of Reclamation presently estimates direct and computable salinity-related damages in the United States amount to \$376 million per year. The River's high salt content is in almost equal part due to naturally occurring geologic features that include subsurface salt formations and discharging saline springs; and the resultant concentrating effects of our users man's storage, use and reuse of the waters of the River system. Over-application of irrigation water by agriculture is a large contributor of salt to the Colorado River as irrigation water moves below the crop root zone, seeps through saline soils and then returns to the river system.

The Environmental Protection Agency's interpretation of the 1972 amendments to the Clean Water Act required the seven basin States to adopt water quality standards for salinity levels in the Colorado River. In light of the EPA's regulation to require water quality standards for salinity in the basin, the Governors of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming created the Colorado River Basin Salinity Control Forum as an interstate coordination mechanism in 1973. To address these international and regionally important salinity problems, the Congress enacted the Colorado River Basin Salinity Control Act of 1974. Title I addressed U.S. obligations to Mexico to control the River's salinity to ensure the U.S.A.'s water deliveries to Mexico are within the specified salinity concentration range. Title II of the act authorized control measures upstream of Imperial Dam and directed the Secretary of the Interior to construct several salinity control projects, most of which are located in Colorado, Utah, and Wyoming.

Title II of the act was again amended in 1995 and 2000 to direct the Bureau of Reclamation to conduct a basin-wide salinity control program. This program awards grants to non-Federal entities, on a competitive-bid basis, which initiate and carry out salinity control projects. The basin-wide program has demonstrated significantly improved cost-effectiveness, as computed on a dollar per ton of salt basis, as compared to the prior Reclamation-initiated projects. The Forum was heavily involved in the development of the 1974 Act and its subsequent amendments, and continues to actively oversee the Federal agencies' salinity control program efforts.

During the past 37 years, the seven-State Colorado River Basin Salinity Control Forum has actively assisted the Federal agencies, including the Bureau of Reclamation, in implementing this unique and important program. At its October 2009 meeting, the Forum recommended that the Bureau of Reclamation seek to have appropriated and should expend \$17.5 million for Colorado River Basin salinity control in fiscal year 2011. We strongly believe the combined efforts of the salinity control efforts of the Bureau of Reclamation, Department of Agriculture and the Bureau of Land Management constitute one of the most successful Federal/State cooperative non-point source pollution control programs in the United States.

The State of Wyoming greatly appreciates the subcommittee's support of the Colorado River Salinity Control Program in past years. We strongly believe this impor-

tant basin-wide water quality improvement program merits continued funding and support by your subcommittee. Thank you in advance for inclusion of this letter in the formal hearing record concerning fiscal year 2011 appropriations.

DEPARTMENT OF ENERGY

PREPARED STATEMENT OF THE STATE TEACHERS' RETIREMENT SYSTEM, STATE OF CALIFORNIA

SUMMARY

Acting pursuant to congressional mandate, and in order to maximize the revenues for the Federal taxpayer from the sale of the Elk Hills Naval Petroleum Reserve by removing the cloud of the State of California's claims, the Federal Government reached a settlement with the State in advance of the sale. The State waived its rights to the Reserve in exchange for fair compensation in installments stretched out over an extended period of time. The State respectfully requests an appropriation of at least \$9.7 million in the subcommittee's bill for fiscal year 2011, in order to meet the Federal Government's obligations to the State under the Settlement Agreement.

BACKGROUND

Upon admission to the Union, States beginning with Ohio and those westward were granted by Congress certain sections of public land located within the State's borders. This was done to compensate these States having large amounts of public lands within their borders for revenues lost from the inability to tax public lands as well as to support public education. Two of the tracts of State school lands granted by Congress to California at the time of its admission to the Union were located in what later became the Elk Hills Naval Petroleum Reserve.

The State of California applies the revenues from its State school lands to assist retired teachers whose pensions have been most seriously eroded by inflation. California teachers are ineligible for Social Security and often must rely on this State pension as the principal source of retirement income. Typically the retirees receiving these State school lands revenues are single women more than 75 years old whose relatively modest pensions have lost as much as half or more of their original value to inflation.

STATE'S CLAIMS SETTLED, AS CONGRESS HAD DIRECTED

In the National Defense Authorization Act for fiscal year 1996 (Public Law 104-106) that mandated the sale of the Elk Hills Reserve to private industry, Congress reserved 9 percent of the net sales proceeds in an escrow fund to provide compensation to California for its claims to the State school lands located in the Reserve.

In addition, in the act Congress directed the Secretary of Energy on behalf of the Federal Government to "offer to settle all claims of the State of California . . . in order to provide proper compensation for the State's claims." (Public Law 104-106, §3415). The Secretary was required by Congress to "base the amount of the offered settlement payment from the contingent fund on the fair value for the State's claims, including the mineral estate, not to exceed the amount reserved in the contingent fund." (Id.)

Over the year that followed enactment of the Defense Authorization Act mandating the sale of Elk Hills, the Federal Government and the State engaged in vigorous and extended negotiations over a possible settlement. Finally, on October 10, 1996 a settlement was reached, and a written Settlement Agreement was entered into between the United States and the State, signed by the Secretary of Energy and the Governor of California, under which the State would receive 9 percent of the sales proceeds in annual installments over an extended period.

The Settlement Agreement is fair to both sides, providing proper compensation to the State and its teachers for their State school lands and enabling the Federal Government to maximize the sales revenues realized for the Federal taxpayer by removing the threat of the State's claims in advance of the sale.

FEDERAL REVENUES MAXIMIZED BY REMOVING CLOUD OF STATE'S CLAIM IN ADVANCE OF THE SALE

The State entered into a binding waiver of rights against the purchaser in advance of the bidding for Elk Hills by private purchasers, thereby removing the cloud over title being offered to the purchaser, prohibiting the State from enjoining or oth-

erwise interfering with the sale, and removing the purchaser's exposure to treble damages for conversion under State law. In addition, the State waived equitable claims to revenues from production for periods prior to the sale. The Reserve thereafter was sold for a winning bid of \$3.53 billion in cash, a sales price that substantially exceeded earlier estimates.

CONGRESS SHOULD APPROPRIATE \$9.7 MILLION FOR THE FISCAL YEAR 2011 INSTALLMENT OF ELK HILLS COMPENSATION

The State's 9 percent share of the adjusted Elk Hills sales price of \$3.53 billion is \$317.70 million. To date, Congress has appropriated seven installments of \$36 million and one installment of \$48 million that was reduced to \$47.52 million by the 1 percent across-the-board rescission under the fiscal year 2006 Defense Appropriations Act, for total appropriations to date of \$299.52 million of Elk Hills compensation owed to the State. Accordingly, the Elk Hills School Lands Fund should have a positive balance of at least \$18.18 million.

In the past, Department of Energy personnel have proffered 4 purported grounds for suspending further payments of Elk Hills compensation to the State. Each of these is a "red herring":

Red Herring No. 1.—Finalization of respective equity shares of Federal Government and ChevronTexaco as selling co-owners of Elk Hills oil field still not completed. The administration's fiscal year 2011 budget request states that "the timing and levels of any future budget request (for Elk Hills compensation) are dependent on the schedule and results of the equity finalization process" between the Federal Government and ChevronTexaco to determine the relative production over the years from their respective tracts in the Elk Hills field. (fiscal year 2011 budget appendix, at p. 435). But DOE already has held back \$67 million, including \$6.03 million from the State's share, to protect the Federal Government's interests in a "worst case scenario" for this equity process. The State has agreed to a "hold-back" of that amount to protect the Federal Government's interest. This reduces the available balance in the Elk Hills School Lands Fund to \$12.15 million. In addition, DOE's fiscal year 2011 budget request detail states that the equity determination is in its final stages: "Of the four applicable zones (in Elk Hills), the Dry Gas Zone and Carneros Zone are finalized. The Office of Hearings and Appeals is asking for additional briefs from both parties before rendering their decision on the Stevens Zone (the largest in Elk Hills). A final recommendation for the Shallow Zone is pending." (p. 754). Accordingly, remaining uncertainty in the equity process thus provides no basis for withholding further payment of the State's Elk Hills compensation.

Red Herring No. 2.—There is no money left in the Elk Hills School Lands Fund right now. The administration's fiscal year 2011 budget request states: "Under the Act (that mandated the sale of Elk Hills), 9 percent of the net proceeds were reserved in a contingent fund in the Treasury for payment to the States. . . . Under the settlement agreement, \$300 million has been paid to the State of California." (fiscal year 2011 budget appendix, at p. 435). The fiscal year 1999 budget request at the time of the sale notes that \$324 million was deposited into the Elk Hills School Lands Fund. (fiscal year 1999 budget appendix, at pp. 378–9). A post-sale adjustment to the Elk Hills sales price reduced this amount to \$317.7 million. Accordingly, after deducting the \$300 million in payments to the State to date and the \$6 million hold-back to protect the Federal Government's interests in the "worst case" scenario for the equity process, the Elk Hills Fund has ample funds available for appropriation of a further payment of compensation to the State.

Red Herring No. 3.—No payment can be made to the State because of pending litigation between ChevronTexaco and DOE. DOE has pointed to pending litigation brought by ChevronTexaco against DOE in the U.S. Court of Federal Claims (Docket No. 04–1365C) as a reason to suspend further payments to the State. This litigation alleges DOE personnel committed misconduct in the equity finalization process by having improper ex parte contacts and having the same DOE staff serve as both advocate for DOE's position and advisor preparing the decision documents for the decisionmaker. However, the California State Attorney General has analyzed this litigation and advised that this litigation is a claim for money damages for DOE staff misconduct that has no effect on the Federal Government's equity share, and so there is no effect on the State's share of compensation. Indeed, under the governing agreement between DOE and Chevron, Chevron had waived any right to contest the final equity determination in court. In any event, the trial in this litigation was completed at the end of 2009, and a decision is expected by Spring.

Hence this litigation provides no basis for withholding the rest of the State's compensation.

Red Herring No. 4.—No payment can be made to the State because the State's share must be reduced by the equity finalization costs and environmental remediation costs and the final amount of such costs is not yet known. The State's share of compensation is properly reduced by the "direct costs of sale" as required by Congress. Since the sale took place over a decade ago, those costs are fixed and known. The State has agreed to bear its share of these sales expenses. However, DOE is seeking to charge against the State's share two additional categories of costs—costs of determining the equity ownership and environmental remediation—that constitute ongoing costs of operating the oil field, not sales expenses. The California State Attorney General advises that these do not properly constitute sales expenses chargeable against the State's share.

More specifically, the Settlement Agreement between the Federal Government and the State provides that the Federal Government shall pay the State "9 percent of the proceeds from the sale of the Federal Elk Hills Interests that remain after deducting from the sales proceeds the costs incurred to conduct such sale." This reflects the congressional direction that, "In exchange for relinquishing its claim, the State will receive 7 (9 in the final legislation) percent of the gross sales proceeds from the sale of the Reserve that remain after the direct expenses of the sale are taken into account." (House Rept. No. 104-131, Defense Authorization Act for fiscal year 1996, Public Law 104-106).

The State has agreed that the \$27.13 million incurred for appraisals, accounting expenses, reserves report, and brokers' commission are appropriate sales expenses. Accordingly, the State's 9 percent share of these proper sales expenses reduces the available balance of the Elk Hills School Lands Fund by \$2.44 million to \$9.7 million.

Costs of conducting the equity adjustment are properly viewed as ongoing costs incurred due to the joint operation of the Elk Hills oil field by the Federal Government and ChevronTexaco, since the equity adjustment already was required under their joint operating agreement and related to pre-sale production revenues. Similarly, costs of environmental remediation of the Elk Hills field was a cost attributable to the prior operation of the field, which created any environmental problems that exist. The ongoing operational nature of this cost is underscored by the fact that the Federal Government is currently engaged in the phased environmental remediation of a Naval Petroleum Reserve that it is not selling—NPR-3 (Teapot Dome), as evidenced by the fiscal year 2011 budget request.

In conclusion, of the current Elk Hills School Lands Fund balance of \$18.18 million, taking into account the "hold-back" for worst case scenario under equity finalization and deducting the appropriate direct costs of conducting the sale, the State respectfully requests the appropriation of at least \$9.7 million for Elk Hills compensation in the subcommittee's bill for the fiscal year 2011 installment of compensation, in order to meet the Federal Government's obligations to the State under the Settlement Agreement.

PREPARED STATEMENT OF PRECISION CUSTOM COMPONENTS, LLC

Dear Mr. Chairman and ranking member: Precision Custom Components, LLC (PCC), located in York, PA, is a manufacturer of custom fabricated pressure vessels, reactors, casks, and heavy walled components for the nuclear power industry and U.S. Navy. Since 1876 the company has made large industrial turbines, nuclear reactor internals for the first commercial nuclear power plant in Shippingport, PA, and spent nuclear fuel shipping casks for the Navy and commercial power plants. In sum, PCC has been an integral part of the U.S. manufacturing base for well over a century.

The President's request for \$38.8 million for research, development and demonstration of small, modular nuclear power reactors is a modest but well thought out program involving both public and private investments. This request for funding is coming at just the right time when engineering and design firms have presented credible new reactor designs that are well within the capabilities of the U.S. manufacturing industry, including PCC. But it is the time consuming and costly regulatory review process at the NRC where joint Federal-private assistance is needed.

The benefits of small, modular nuclear reactors are well documented; from creating U.S. jobs, to creating new sources of carbon-free baseload power, to improving the financial risk otherwise associated with larger power plants. These innovations will also incorporate some of the latest safety features and proliferation resistant technologies bringing additional public benefits and export opportunities.

If you could make this correspondence part of the record for outside witness testimony PCC would like to be on record as supporting the President's budget request

for \$38.8 million for the Department of Energy's small, modular reactor program in fiscal year 2011, including and encompassing light water reactor (LWR) based designs and other technologies.

PREPARED STATEMENT OF THE NATIONAL INSULATION ASSOCIATION AND THE INTERNATIONAL ASSOCIATION OF HEAT AND FROST INSULATORS AND ALLIED WORKERS

FEDERAL FUNDING FOR MECHANICAL INSULATION WILL CREATE SHOVEL READY, GREEN ENERGY JOBS ALL WHILE SAVING ENERGY AND PROTECTING THE ENVIRONMENT

Chairman Dorgan, Ranking Member Bennett, and members of the Subcommittee on Energy and Water Development, on behalf of the National Insulation Association (NIA) and the International Association of Heat and Frost Insulators and Allied Workers (International Union), we are writing in support of a programmatic increase to \$3.5 million in fiscal year 2011 for the Department of Energy's Industrial Technologies Program specifically for a national mechanical insulation education and awareness program.

NIA represents 95 percent of the products utilized in the mechanical insulation industry, with members across the country at 800 corporate locations, and the International Union represents more than 25,000 workers and families employed in the mechanical insulation sector across the country. Together, our members, of which the vast majority are small businesses, have more than a century-long track record of providing large- and small-scale, long-term energy efficiency, emissions reductions, cost savings, and safety benefits at manufacturing facilities, power plants, refineries, hospitals, universities, and government buildings across the country.

We have joined together to advocate for a national comprehensive advocacy program for increased use, maintenance, and retrofits of mechanical insulation in the commercial and industrial sectors because of its potential to create tens of thousands of jobs now, reduce carbon emissions, increase energy savings, and provide a safer working environment.

Buildings are responsible for 40 percent of U.S. energy demand and 40 percent of all greenhouse gas emissions, making efficiency gains in this area crucial if we are to markedly reduce America's energy consumption and effectively combat climate change. The industrial sector is similar in energy efficiency opportunities. At the residential level, insulation is well publicized for its efficiency benefits. However, the same cannot be said in the commercial and industrial sectors, which together consume 2½ times more energy than homes, according to the Energy Information Administration. Commercial and industrial insulation—collectively known as mechanical insulation—has the potential to slash the energy demand for the building and industrial sector.

Congress has already signaled its support for a mechanical education and awareness program through both the appropriations and authorization process. Congress directed \$500,000 be allocated in the Department of Energy's budget for a mechanical insulation education and awareness campaign in the fiscal year 2010 Energy and Water Appropriations bill (Public Law 111-85). This funding was a critical start, and we thank members of the Appropriations Committee for recognizing the value of this program, but more is needed to carry out a successful campaign. Further evidence of Congress' support for such a program is the inclusion of language to authorize a 5-year, \$3.5 million a year national industrial energy efficiency education and training initiative focused on mechanical insulation in H.R. 2454, the American Clean Energy and Security Act of 2009 (section 275, page 521).

By increasing awareness and use of this energy-saving technology, Congress will both create jobs now and reduce carbon emissions. Creating jobs, particularly green jobs, is a top priority for Congress and the administration. Using government data, NIA conservatively estimates that maintenance of insulation at industrial facilities and going beyond minimum levels in new construction can generate \$4.8 billion in energy savings per year, reduce 43 million metric tons of carbon dioxide and other greenhouse gas emissions, and create 89,000 jobs annually.

Best of all, these jobs don't require additional research and development. Mechanical insulation opportunities can be easily identified, with potential energy savings and emissions reduction determined with proven DOE-utilized software technology, and in many applications implemented in weeks, making projects truly shovel-ready.

For facility owners and operators, the savings are swift and last for many years; the return on investment from mechanical insulation is typically less than 2 years (and sometimes as little as 6 months). Mechanical insulation also improves infrastructure in the public, educational, and health-care sectors, among others.

Fiscal year 2010 funding for mechanical insulation education programs is insufficient to make an economic impact in the industrial and commercial sector through energy savings, emissions reduction, and job creation. Increased funding from Congress in fiscal year 2011 would enable Federal agencies and industry partners to gather more data, work with engineering schools, and reach out to facility managers and owners, engineering and design professionals, and others to educate them about the benefits of increasing their focus on the benefits of mechanical insulation technology. Congressional funding would also ensure the promotion of the most energy-efficient uses of mechanical insulation in new construction, increased education about the energy savings that can be realized through proper maintenance and a renewed focus on retrofitting mechanical insulation in older buildings and manufacturing facilities that together will generate substantial carbon emissions reductions and sustainable jobs.

NIA and the International Union have cumulatively contributed \$3.0 million in developing and beginning the implementation of the campaign and are committed to matching the fiscal year 2011 funding to a \$500,000 level. As such, we have outlined program elements for a comprehensive, persuasive awareness campaign to engage and motivate industrial and commercial decisionmakers to take action.

Elements of the program would include:

- Develop curriculum and conduct NIA-led educational sessions
- Utilize web-based information for educational programs
- Provide educational programs at industry and government conferences and workshops
- Implement awareness and educational marketing and advertising campaign
- Develop needed data and seek media coverage of success stories and the facts
- Engage NIA and Union members and other allies to actively support the campaign

NIA, its members, and the International Union are committed to working with Congress, the Department of Energy, other Federal agencies, and key stakeholder groups on these and other initiatives that will lead to greater energy efficiency nationwide. We have formed alliances with engineering and other industry trade organizations and have offered to work with the Department of Energy to bring together a coalition to help develop, implement, and provide educational awareness programs established and funded by Congress.

Thank you for the opportunity to submit testimony in support of a program that is critical to job creation, economic growth, energy savings, and emissions reductions.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

On behalf of the American Society of Plant Biologists (ASPB), we submit this statement for the official record to support the requested level of \$5.12 billion for the Department of Energy's Office of Science for fiscal year 2011. The testimony highlights the importance of biology, particularly plant biology, as the Nation seeks to address vital issues including climate change and energy security. We would also like to thank the subcommittee for its consideration of this testimony, for its strong support for the basic research mission of the Department of Energy's Office of Science, and for recognizing that funding for the Office of Science is an investment in America's future.

ASPB is an organization of more than 5,000 professional plant biologists, educators, graduate students, and postdoctoral scientists. A strong voice for the global plant science community, our mission—which is achieved through engagement in the research, education, and public policy realms—is to promote the growth and development of plant biology and plant biologists and to foster and communicate research in plant biology. The Society publishes the highly cited and respected journals *Plant Physiology* and *The Plant Cell*, and it has produced and supported a range of materials intended to demonstrate fundamental biological principles that can be easily and inexpensively taught in school and university classrooms by using plants.

FOOD, FUEL, CLIMATE CHANGE, AND HEALTH—PLANT BIOLOGY RESEARCH AND AMERICA'S FUTURE

Plants are vital to our very existence. They harvest sunlight, converting it to chemical energy for food and feed; they take up carbon dioxide and produce oxygen; and they are almost always the primary producers in the Earth's ecosystems. Indeed, plant biology research is making many fundamental contributions in the areas of fuel security and environmental stewardship; the continued and sustainable de-

velopment of better foods, fabrics, and building materials; and in the understanding of basic biological principles that underpin improvements in the health and nutrition of all Americans. To go further, plant biology research can help the Nation both predict and prepare for the impacts of climate change on American agriculture, and it can make major contributions to our Nation's efforts to combat global warming.

In particular, plant biology is at the center of numerous scientific breakthroughs in the increasingly interdisciplinary world of alternative energy research. For example, interfaces among plant biology, engineering, chemistry, and physics represent critical frontiers in both basic biofuels research and bioenergy production. Similarly, with the increase in plant genome sequencing and functional genomics, the interface of plant biology and computer science is essential to our understanding of complex biological systems ranging from single cells to entire ecosystems.

Despite the fact that plant biology research—the kind of research funded by the DOE—underpins so many vital practical considerations for our country, the amount invested in understanding the basic function and mechanisms of plants is relatively small when compared with the impact it has on multibillion dollar sectors of the economy like energy and agriculture.

RECOMMENDATIONS

ASPB is in an excellent position to articulate the Nation's plant science priorities as they relate to bioenergy and, specifically, with regard to recommendations for bioenergy research funding through the Department of Energy's Office of Science. Our recommendations, in no particular order, are as follows:

- We commend the DOE Office of Science, through their Divisions of Basic Energy Sciences (BES) and Biological and Environmental Research (BER) for funding the Bioenergy Research Centers (BER) and the Energy Frontier Research Centers (BES). Although these efforts are well designed and a significant step forward, these large centers will not have a monopoly on good ideas. Therefore, ASPB strongly encourages the appropriation of additional funds for the DOE Office of Science that would be specifically targeted to the funding of individual or small group grants for bioenergy research.
- The DOE Office of Science is the primary funding agency for physical science research. Past experience teaches us that many major scientific and technical breakthroughs occur at the interface between traditional scientific disciplines. Indeed, the importance of disciplinary integration is a central theme of the recent National Research Council report "A New Biology for the 21st Century: Ensuring the United States Leads the Coming Biology Revolution." Therefore, ASPB recommends appropriations that would specifically target the interface between plant biology and the physical sciences to encourage multidisciplinary and cross-disciplinary research that would address significant problems in bioenergy research.
- Photosynthetic research is one clear example of an interface between the physical sciences and biology. The DOE Office of Science has been the major source of funds for fundamental studies of photosynthesis, which is the primary source of chemical energy on the planet. After all, fossil fuels are just photosynthetic energy that was trapped eons ago and converted through natural processes into the forms in which we use it today. However, the current funding available for photosynthetic research is not commensurate with the central role that photosynthesis plays in energy capture and carbon sequestration. Hence, ASPB calls for an increase in appropriations to the Office of Science to expand its research portfolio in the area of photosynthesis and carbon capture.
- There are significant questions that must be answered as to how climate change will impact food production and the environment. There are also clear opportunities to use biological systems to ameliorate climate change, such as through carbon sequestration or modification of plants to resist environmental stress. Therefore, ASPB calls for additional funding focused on studies of the effect of climate change on agricultural cropping systems, basic studies of effects on plant growth and development, and targeted research focused on modification of plants to resist climate change and for use in carbon sequestration.
- Current estimates predict a significant shortfall in the needed scientific and engineering workforce in the energy area. Given the expected need for additional scientists and engineers who are well-grounded in interdisciplinary research and development activities, ASPB applauds DOE's Early Career Research Program and calls for additional funding of specific programs (e.g., training grants) that are targeted to provide this needed workforce over the next 10 years and to adequately prepare them for careers in the interdisciplinary energy research

of the future. It should be noted that this recommendation is also directly in-line with the above mentioned “New Biology” report from the NRC.

—Computational biology is a relatively new discipline that arose from the interface of computer science and biology. These new technologies and approaches provide the only means by which these large biological datasets can be integrated and mined for new, relevant biological knowledge. Therefore, as discussed in item 2 above, ASPB calls for additional funding that would target this interface between biology and computer science. Specifically, we call for additional funding to develop computational platforms to develop a systems-level view of biology through the integration of data obtained from a variety of functional genomics approaches. This is clearly a “grand challenge” that is currently limiting the utility of this information. The above mentioned NRC report reinforces this point through the recommendation that “priority be given to the development of new information technologies.” One means to address this need would be to expand the BER KnowledgeBase initiative that is now only a pilot program.

—Considerable research interest is now being paid to the use of plant biomass for energy production. If biomass crops are to be used to their full potential, however, considerable effort must be expended to improve our understanding of their basic biology and development, as well as their agronomic performance. Therefore, ASPB calls for additional funding that would be targeted to efforts to increase the utility and agronomic performance of bioenergy crops.

Thank you for your consideration of our testimony on behalf of the American Society of Plant Biologists. Please do not hesitate to contact the American Society of Plant Biologists if we can be of any assistance in the future.

PREPARED STATEMENT OF THE NATIONAL MINING ASSOCIATION (NMA)

Excess Uranium Sale.—Under current law, the Department of Energy (DOE) can sell excess Government uranium inventories only after a Secretarial Determination that such sales or transfers (1) will not adversely impact the domestic uranium mining, conversion or enrichment industries and (2) will obtain fair market value for such sale or transfer. In December 2008, after obtaining a consensus agreement from the nuclear industry, DOE published a plan to manage the sale or transfer of excess Government uranium inventories. Critical to the plan were (1) gradually ramped up sales in the early years of the plan (2) sales of initial cores for new domestic reactors and (3) the establishment of an emergency reserve for current nuclear reactors. In July 2009, DOE announced plans to not follow the plan and to use uranium barter transactions to fund accelerated cleanup of the Portsmouth Ohio Enrichment Plant. Last year, the Energy and Water Appropriations members responded to DOE’s proposal and directed GAO to evaluate the Department’s management of the excess uranium inventories. The members also increased funding for the Portsmouth cleanup. Over the domestic mining industry’s objections and USEC’s acknowledgment that DOE’s proposal would adversely impact the uranium market, DOE initiated the barter transaction with USEC in the fourth quarter of 2010. The current budget request for Portsmouth cleanup will remove the need for adverse excess uranium sales, allow DOE to follow its management plan, and accelerate cleanup reducing the total amounts required to complete cleanup of the site.

Loan Guarantee Program.—NMA was pleased to see the DOE move forward in its request for additional authorizations for the title XVII loan guarantee program. We firmly believe that this program, in conjunction with other Federal financial incentives, can be used to encourage the development of clean energy sources. We are however concerned that the additional authorizations did not include all clean energy sources such as coal with advanced technologies and carbon capture and sequestration. Given the substantial role coal plays in our energy mix, we encourage the Department of Energy to include them as they continue to advance funding mechanisms for other clean energy sources.

Office of Fossil Energy

Background.—NMA is disappointed that the U.S. Department of Energy (DOE) fiscal year 2011 request severely reduced the overall fossil energy budget, with steep declines in funding for coal programs. While we recognize that the economic stimulus package enacted last year included demonstration project and Clean Coal Power Initiative funding, we do not believe that such funding justifies the 20 percent cut to all fossil energy programs, in the fiscal year 2011 budget request. Reductions of this magnitude will compromise advances in clean coal and carbon capture and sequestration efforts. Such cuts also jeopardize future funding of the projects

by forcing them to continually rely on supplemental spending bills. We would encourage the administration to submit line item requests for these programs through the regular budget process. In providing greater budgeting stability these programs will be better equipped to achieve their intended goals within a timely manner.

- NMA fully supports and urges maximum funding for carbon capture and storage (CCS) projects that avoid, reduce or store air pollutants and greenhouse gases while contributing long-term economic growth and international competitiveness. Substantial Federal funding for continued research, development and demonstration of CCS technologies will be required before CCS can be applied to large-scale commercial power plants. The construction and operation of near-zero emission and low carbon projects, such as the proposed FutureGen project in Mattoon, Illinois are indispensable to demonstrate that the technology necessary to meet domestic energy demands of the 21st century are available on a commercial scale. NMA strongly supports the recent agreement between the DOE and the FutureGen Alliance to proceed with a reconfigured carbon capture and storage energy facility at Mattoon, Illinois. We support the \$1 billion from the American Recovery and Reinvestment Act for use in this endeavor along with the \$800 million for the Clean Coal Power Initiative (CCPI). Although CCPI received the necessary funding to complete solicitations for the third round of the program, we believe additional funding is necessary to meet the administration's programmatic goal of wide scale CCS deployment by 2016. The number of large scale commercial demonstration projects that are currently underway is insufficient to meet this deadline. We remain concerned that DOE continues to not request any funding for large scale applications of CCS technology as has been the case in fiscal year 2010 and fiscal year 2011. NMA encourages DOE to provide support for a strong domestic CCS program and to initiate a CCPI Round 4 program.
- Funding for basic research and development of new, innovative clean coal technologies is necessary to continue the progress made over the last 35 years. Regulated emissions from coal-based electricity generation have decreased by nearly 40 percent since the 1970s, while the use of coal has tripled. Well-funded basic coal research by DOE and clean coal technology demonstrations undertaken by DOE-private sector partnerships will continue this significant progress in energy production and environmental improvement. Technological advancements achieved in the base coal research and demonstration programs such as gasification, advanced turbines and carbon sequestration provide the component technologies that will ultimately be integrated into the FutureGen project as recently reconfigured. NMA supports funding several of these programs at levels higher than the President's request, specifically \$80 million for IGCC/gasification (DOE's requested amount: \$55 million), \$45 million for advanced combustion (DOE's request does not include direct funding) and \$31 million for advanced turbines (DOE's request: \$31 million). We are, however, pleased that DOE provides nearly \$143 million for the Carbon Sequestration Research & Development program and Carbon Sequestration Injection Tests combined. We hope that DOE will work with industry to identify specific programmatic activities and funding for these programs. The increase in funding for these and other programs will ensure that the FutureGen project meets the intended goals outlined in DOE's 2004 report to Congress, "FutureGen, Integrated Sequestration and Hydrogen Research Initiative—Energy Independence through Carbon Sequestration and Hydrogen from Coal."
- In addition, NMA recommends \$3 million of funding for the Center for Advanced Separation Technologies (CAST), which is a consortium of seven universities lead by Virginia Tech. CAST has developed many advanced technologies that are used in industry to produce cleaner fuels in an environmentally acceptable manner, with some having cross-cutting applications in the minerals industry.

Coal Tax Provisions

NMA objects to the fiscal year 2011 budget singling out coal mining for \$2.3 billion worth of tax increases. U.S. coal producers play an integral role in fostering the Nation's continued economic prosperity by meeting much of America's growing energy needs. To maintain affordable energy prices and preserve jobs, Congress should reject these unwarranted proposals to eliminate longstanding tax rules affecting coal mining.

NMA does not support the administration's proposal to eliminate the capital gains treatment of coal and lignite royalties. Under current law, royalties received on the disposition of coal or lignite generally qualify for treatment as long-term capital gain, and the royalty owner does not qualify for percentage depletion with respect

to the coal or lignite. The fiscal year 2011 budget proposes to repeal the capital gain treatment of coal and lignite royalties and to tax those royalties as ordinary income. There is no tax policy reason to single out coal royalties for changes to the capital gains rules.

NMA does not support the administration's proposal to eliminate the domestic manufacturing deduction. Under current law, a deduction is allowed with respect to income attributable to domestic production activities (the manufacturing deduction). The fiscal year 2011 budget proposes to repeal the manufacturing deduction for gross receipts derived from the sale, exchange or other disposition of coal, other hard mineral fossil fuels, or a primary product thereof. Present law should be retained as Congress enacted an across-the-board domestic manufacturing deduction in order to reduce the effective corporate income tax rate on domestic manufacturing activities and preserve U.S. manufacturing jobs.

NMA does not support the administration's proposal to eliminate the present law tax-expensing of coal exploration costs. Under current law, taxpayers may elect to expense (i.e., deduct in the year the costs are incurred) mining exploration and development costs with respect to domestic ore and mineral deposits. The fiscal year 2011 budget proposes to repeal expensing and 60-month amortization of exploration and development costs relating to coal and other hard mineral fossil fuels. The expensing of coal mining exploration costs is part of the current calculation for appropriately measuring taxable income from coal and other mining operations. That appropriate measurement of taxable income under present law should not be changed as a way of increasing taxes on the coal industry.

NMA does not support the administration's proposal to eliminate the percentage depletion tax-deduction for mining activities. Under current law, the capital costs of mines are recovered through the depletion tax deduction. Under the percentage depletion method, the amount of the deduction is a statutory percentage of the gross income from the mining property. The fiscal year 2011 budget proposes to repeal percentage depletion with respect to coal and other hard mineral fossil fuels. The percentage depletion deduction is part of the current calculation for appropriately measuring taxable income from coal and other mining operations. Coal mining requires significant financial commitments to long-term projects to deliver a reasonably priced product. Enormous amounts of capital must be expended at the front end of coal mining projects to realize future returns. With such sizable capital costs, cost recovery through percentage depletion has a significant effect on the margins and prices at which coal can be profitably sold.

U.S. ARMY CORPS OF ENGINEERS—REGULATORY AND CIVIL WORKS PROGRAMS

Background.—The U.S. Army Corps of Engineers' (Corps) Regulatory Branch plays a key role in the U.S. economy through the Corps annual authorizations of approximately \$200 billion of economic activity through its regulatory program. NMA supports the inclusion of language directing the Corps to dedicate sufficient personnel and financial resources needed to support an efficient permit review process. We remain concerned about the backlog of surface coal mining permits and encourage the Corps to utilize this increased funding expeditiously to address this issue as outlined in their statutory authority.

Regulatory Program

NMA supports increased funding for administering the Corps' Clean Water Act (CWA) section 404 permit program. We encourage the Corps to utilize this funding to address the backlog of surface coal mining permits and to devise a more efficient permitting program.

Civil Works Programs

NMA opposes the Corps' proposed concept of a new inland waterways "lockage fee/tax," which would replace the current diesel fuel tax to fund improvements to the Nation's inland waterways system. A lockage tax would more than double the taxes paid by the towing industry. The coal industry ships approximately 185 million short tons of coal annually on the inland waterways systems, therefore the cost of a new tax will ultimately be borne by the consumers of coal-fueled electricity. NMA opposes such a tax increase and urges Congress to reject this proposal.

PREPARED STATEMENT OF AVÄLENCE, LLC

Dear Senator Dorgan and Senator Bennett: I am writing to request that you fund DOE Hydrogen and Fuel Cell program at the level of support being requested by the National Hydrogen Association and the U.S. Fuel Cell Council:

INDUSTRY PROPOSED DOE HYDROGEN AND FUEL CELL FUNDING

[In millions of dollars]

	Amount
EERE Programs	220.0
Fossil Energy Programs	118.8
Nuclear Energy Programs	8.5
Science Programs	38.0
Total	390.0

Avallence is a producer of high-pressure hydrogen generators that use solar, wind and other renewable energy to make local, sustainable, and emissions-free hydrogen fuel for fuel cell and other hydrogen vehicles. Avallence is manufacturing hydrogen fueling stations, many of which are powered by renewable energy to create completely local, zero emissions fuel.

The hydrogen economy is starting to happen. At a recent U.S. Senate briefing, representatives from major automotive companies like GM and Daimler reaffirmed their companies' commitment to producing commercial hydrogen fuel cell vehicles by 2015. Several countries such as Germany and Japan have hydrogen infrastructure plans in place. DOE development and commercialization funding for hydrogen and fuel cells leverages the billions of dollars already invested in FCVs by the global automotive industry—at the very moment in time that they are deploying the first fleets of vehicles and are seeking the hydrogen infrastructure needed to bring their vehicles to market.

New hydrogen production technologies are a critical part of the portfolio of clean energy solutions that are emerging to address the decline in global oil reserves. Development of advanced hydrogen production technologies is being spearheaded throughout the Nation by many pioneering small businesses such as Avallence, LLC—small, high tech firms with exciting clean energy solutions. Our national energy security and the strength of our economy in the new energy age will benefit most from a robust national portfolio of hydrogen generating technologies that includes not only hydrogen production from fossil fuels, but also distributed generation of hydrogen from grid electricity and green hydrogen from solar, wind and other renewable energy sources.

PREPARED STATEMENT OF CYNTHIA RAMSEUR, MEMBER, GULF COAST CONSERVATION
COALITION AND GULF RESTORATION NETWORK

Summary of My Testimony.—As I understand it, the Senate subcommittee is receiving comments through April 1 regarding the energy budget. I was pleased to learn that the President's proposed budget does not include funds for studies, investigations or land acquisitions for the DOE's proposed Richton Salt Dome Strategic Petroleum Reserve. I am writing to ask that you uphold the President's budget request regarding the Richton proposal. I sincerely ask that you disallow any last-minute requests to add a budget line item for further expenditures regarding the proposed Richton SPR. If I understand correctly, over \$80 million have already been spent to date on investigations and studies regarding the project: I do not want the Federal Government to continue "throwing good money after bad money".

Full Testimony.—I am one of 400 plus people who stood up in a public hearing on April 10, 2008 in Pascagoula, Mississippi and opposed the development of a strategic petroleum reserve at Richton, Mississippi. Since that time, the coalition of individuals and organizations opposing the project has grown—yet we can not get consistent information about the DOE's continued interest in the proposed Richton SPR or information about the status of the NEPA process.

RICHTON PROJECT TIMELINE

At the April 2008 public hearing DOE announced plans for the Richton Strategic Petroleum Reserve 3 days after Hurricane Katrina (Aug 2005).

DOE held public hearings for the project in Jackson during the 3-month period after Katrina.

DOE presented the plan to Congress in June 2007.

DOE released EIS in fall of 2007 with construction to begin in January 2008.

At the urging of local concerned citizens, Congressman Gene Taylor obtained a pause and public hearings were held in April 2008.

Supplemental EIS was to be released in June 2008 but was delayed until August 2008.

Supplemental EIS scheduled for release in August was delayed again without notice of reschedule.

Current status?

I am pleased to learn that funding for the Richton SPR is not included in the President's proposed budget; however, I am writing to ask that you continue to withhold funding for the proposed SPR at Richton disallowing any requests to add in a line item at the last minute. If I understand correctly over \$80 million have been spent to date on investigations and studies regarding the DOE's proposal. I do not want the Federal Government to continue "throwing good money after bad money." The major problems identified in the initial Environmental Impact Statement remain: DOE failed to adequately examine the economic and environmental effects of the proposed project. If I understand correctly over \$80 million have been spent to date on investigations and studies regarding the DOE's proposal.

The proposed SPR expansion at Richton, Mississippi was ill-conceived, ill-advised and technically flawed. The NEPA process was a waste of taxpayer money. Note: The facts and figures presented here were collected by a coalition of citizens and organizations led by Gulf Coast Conservation Coalition and Gulf Restoration Network; the information comes directly from the Department of Energy SPR Web site at www.fossil.energy.gov/programs/reserves/.

THE RICHTON SPR EXPANSION SITE—AN ENVIRONMENTAL DISASTER

This proposed project is seriously flawed on many levels and DOE has refused to honestly evaluate and disclose the dangers. Their publications and public statements have misrepresented the facts.

DOE plans to draw 50 million gallons of fresh water per day from the Pascagoula River Merrill, Mississippi every day for 5 to 6 years and pipe it to Richton to dissolve underground salt deposits. The loss of that water would be harm the fish, animals, and humans that depend on the river's abundant flow. The entire Pascagoula River basin would suffer as water levels drop and salt water from the Mississippi Sound moves further up the river.

The toxic salty waste would then be pumped 100 miles across 56 bodies of fresh water to the Gulf of Mexico and dumped near the barrier islands. To understand the threat, dissolve 11 pounds of salt in a 5-gallon bucket of fresh water. Keep stirring until you can dissolve no more salt. Now, dump that bucket of salt water onto your garden. Of course you wouldn't do this, but that is exactly what DOE wants to do to our coastal waters—10 million 5-gallon buckets every day.

Communities on the coast depend on wells for their drinking water supplies. The underground aquifer that feeds our wells is replenished by surface water between the coast and Hattiesburg. How would the aquifer be affected by removing 50 million gallons of water from the Pascagoula River each day?

DOE predicts a minimum of 56 brine spills from a 100-mile Richton brine disposal pipeline. At the existing SPR sites DOE records list 227 spills in a 20 year period that released 64,014,000 gallons of toxic waste. The average spill was 282,000 gallons. Yet, DOE says that salt waste spills would not cause damage to the Pascagoula River and the adjoining woods and farmland.

In order to remove oxygen from the brine waste to protect the pipelines from rust, DOE would add 360 gallons of ammonium bisulfite each day. Ammonium bisulfite is listed as a hazardous chemical by the U.S. Occupational Safety and Hazard Administration. The U.S. Coast Guard classifies it as a marine pollutant. DOE plans to dump this toxic chemical into our coastal waters with the brine waste.

Currents, tides and ship traffic would allow brine waste into the Mississippi Sound, the largest estuary on our coast. Remarkably, DOE did not consider tides or winds in the initial Environmental Impact Statement and we have yet to get information on the Supplemental EIS.

Our barrier island passes are key corridors for the larvae and post larvae of economically important fish and shellfish to move between the gulf and Mississippi Sound. These fragile young organisms may not survive the "brine barrier" created by the salt waste. Local experts in marine life and the seafood industry are deeply alarmed. But DOE has not considered the problem. They have not contacted the Gulf Coast Research Laboratory (GCRL) or other local experts who volunteered their expertise when these and other problems were brought to DOE's attention during the public meetings in April 2008.

The Pascagoula River was listed this year as America's ninth most endangered river. The proposed water withdrawal would take place in critical habitat for endangered and threatened species.

To recap the environmental concerns, approximately 80 billion gallons of low oxygen, toxic, salt brine waste (roughly 10 times the average salinity of the gulf waters) would be dumped into the gulf, only 4 miles south of Horn Island Pass and directly in line with the Pascagoula Ship Channel. The loss of fresh river water would threaten our drinking water supplies and harm the river system. The pipeline would leak brine into the Pascagoula River and the woods and farmland. The salt waste would create a dead zone in our coastal waters and degrade fisheries, destroy critical habitat, and pollute important waters necessary for the growth of juvenile fish and shellfish.

THE RICHTON SALT DOME SPR—AN ECONOMIC BOONDOGGLE

Currently, the existing SPR sites are 92 percent full. Oil from the SPR has been used only twice during its 20-year history:

—After Hurricane Katrina shut down 25 percent of the domestic supply of petroleum, the United States used only 1.5 percent of the SPR.

—During the first gulf war only 2 percent of the SPR was used.

DOE says that the project would create only 10 to 20 permanent jobs on the coast and only 100 in Richton after construction is completed. Degrading our river and gulf ecosystems for such a small number of permanent jobs is a catastrophe and a disgrace. Worse, DOE failed to consider the loss of existing jobs. Apparently, DOE does not value our local industrial workers and fishermen. And what about the coast's growing tourism industry?

DOE says that the proposed tank farm site and deep water dock required by the project would create only 10 to 20 new jobs while consuming up to 49 acres of prime industrial land in the Pascagoula Port. Current industrial uses of land in the port provide far more jobs per acre. A 49-acre site should produce more than 500 jobs. Do we want to lose 450 future jobs on the coast?

Private landowners who sell their property for the storage site in Richton and pipeline rights-of-way are the big beneficiaries of this expensive publicly funded project. There is very little public benefit. Even DOE acknowledges that their contractors would use "in-migrating" workers for this work instead of local Mississippi residents.

Based on the cost of oil at about \$70/bbl, the Richton project would cost approximately \$11 billion for just 18 days worth of oil. There are far better ways for America to spend \$11 billion. Instead of buying a hole in the ground, America should invest in increased efficiency and renewable energy systems that would give our children cleaner water, better jobs, and a more secure nation.

The withdrawal of 50 million gallons of water per day for 5 to 6 years from the Pascagoula River could jeopardize Jackson County's ability to supply cooling water to existing and future industries. As a recent example, look at the building moratoriums and economic disruptions in Georgia as a result of overuse of the Chattahoochee River.

THE RICHTON SPR EXPANSION SITE—ANOTHER EXAMPLE OF FAT CATS AND WASHINGTON DUMPING ON MISSISSIPPI

DOE announced the Richton SPR project 3 days after Katrina struck. Within 4 months after Katrina public hearings were completed in Jackson. No meetings were held on the coast. Virtually no one from the coast knew of the plan; most coast citizens were still concerned with immediate recovery needs.

DOE dodged and ignored public input. Rather than rely on the local experts at the Gulf Coast Research Laboratory, they hired a Washington contractor to conduct the entire evaluation of the project's effects on the coast. None of the project team has ever been on the Pascagoula River, the Mississippi or the Gulf of Mexico in Mississippi.

A citizen outcry in 2008 prompted public meetings finally won coast residents an opportunity to participate. More than 400 people attended, including businessmen, scientists, and fishermen. They detailed the proposed project's many problems, they offered a wealth of information, and volunteered their help. Now, a year later, DOE has released the supplemental study and still have not bothered to talk to GCRL and other local experts who know the river and the coastal waters.

Again, I urge the Senate Committee on Appropriations Subcommittee on Energy and Water Development to keep funding for the proposed Richton Salt Dome SPR out of the Federal budget. These are tough economic times for everyone and we do not need our Government to spend any more resources on DOE's proposed project. Thank you for your consideration.

PREPARED STATEMENT OF JULIA O'NEAL

U.S. DEPARTMENT OF ENERGY STRATEGIC PETROLEUM RESERVES RICHTON SALT DOME PROJECT

I strongly support the cancellation of all previous funding for the Richton project in the President's fiscal year 2011 budget request for the Department of Energy (DOE) and urge the Senate Committee on Appropriations Subcommittee on Energy and Water Development and its members to support this portion of the proposed budget.

Along with many others, particularly the Gulf Conservation Coalition and the Gulf Restoration Network, I herewith voice my objections to the DOE's choosing the most expensive site for the expansion of the SPR (the next most expensive, Big Hill, Texas, was less about 15 percent of the cost of Richton, largely because of the 330 miles of pipeline required in Mississippi); the fact that the Environmental Impact Statement (EIS) has not been finalized per NEPA requirements; and the extensive water pollution and environmental destruction the Richton Salt Dome Project would create.

Others have done an excellent job on the cost and detailed comments on the EIS. I would like to highlight the politics of this project. Our family farm is about 30 miles north of Biloxi. Katrina was a big setback for this area, which has always been poor anyway. The coming of the casinos to the Mississippi gulf coast made a big economic change there, but the isolated, uneducated culture persists only a few miles inland. Because developers never were interested in South Mississippi, much of it remains in its natural state—natural, that is, post the massive harvest of the longleaf pine at the turn of the last century. Most people have no idea what a gem we have in, for instance, the largest unregulated river system in the lower 48, the Pascagoula River. People are just beginning to tap the potential for ecotourism in an area that hosts an annual abundance of neotropical migrating birds, clear sandy streams and creeks, and lots of native flora and fauna.

Mississippi's Governor at the time of Katrina, Haley Barbour, was a significant actor in Cheney's Energy Task Force—known to have recommended (on behalf of his lobbying client, the Southern Company) that George W. Bush renege on his campaign promise to cut emissions (http://www.sourcewatch.org/index.php?title=Haley_Barbour). Just weeks before Katrina, the Sierra Club released a film connecting the Energy Task Force to Barbour's attempt to open up the inner Mississippi gulf coast at the barrier islands to oil and gas drilling (<http://www.sierraclub.org/tv/episode-storm.asp>, see Episode 6, "Storm in the Gulf"). Katrina taught us, again, how much we need those undisturbed barrier islands.

Barbour had more Energy Task Force business to conduct. Some little-noticed Federal legislation sponsored by then-Representative Chip Pickering only allowed DOE to look at previously considered sites, or those nominated by a Governor, for expanding the SPR (the Pickering Strategic Petroleum Reserve Amendment to the Energy Policy Act of 2005). Then, on October 18, 2005, just weeks after Katrina, public scoping meetings for expansion of the SPR were held in Jackson. Jackson oilman Julius Ridgeway, who had contributed \$70,000 to the Republican Party, testified that his family owned 75 percent of the salt and storage rights under the dome (http://www.fossil.energy.gov/programs/reserves/spr/jackson_meeting_transcript.pdf). Ridgeway announced his "cooperation and support" and Pickering called it "the largest Federal construction project in Mississippi history." In 2006, Barbour contacted Energy Secretary Samuel Bodman and Deputy Secretary Clay Ball offering two sites for the SPR (U.S. Department of Energy Executive Secretariat Correspondence Control). In the same year, Bodman's former chief of staff, Eric Burgeson, joined Barbour's lobbying firm (<http://www.muckety.com/Eric-Robert-Burgeson/11067.muckety>). On February 14, 2007, Bodman announced Richton would be the site of the new SPR facility.

None of this is illegal of course. But such conflict of interest does not serve the American taxpayers' best interests.

The part of the State that would be most affected by this project was otherwise engaged on October 18, 2005. We were looking for water, gas, food and shelter, and trying to get out from under massive fallen trees. (See the second paragraph of Ronnie Blackwell's 2007 column for our confusion about the local SPR site-choice process: <http://ronnieblackwell.com/WordPress/?p=71>).

The EIS, which cost the DOE \$3.7 million, was conducted by ICF International, the firm that incompetently conducted the "Road Home" program in Louisiana after Katrina. I have seen (and can produce on request) an e-mail to David Johnson at the DOE from Ian Frost, a consultant for ICFI, dated June 6, 2007, that discusses a U.S. Fish and Wildlife Service request for an additional U.S. Geological Survey

study relative to water flow. The e-mail suggests that the consultants are more interested in helping DOE get the project built than doing a thorough EIS.

The Richton Salt Dome project aims to pump 50 million gallons of water per day out of the Pascagoula and Leaf Rivers. The water will be pumped (using lots and lots of fossil fuel) into a land formation called the Richton Salt Dome. Instead of mining the salt and selling it to the people up north who say they need it for de-icing roads, the salt will be mixed with perfectly clean, even potable, water, and pumped through the salt dome. Then the highly salted water (“brine”) will be pumped into the Gulf of Mexico (using lots more fossil fuel for that pump job), where the excess salt in the water will do in marine life, including the endangered Gulf Sturgeon. The brine should pretty much end oysters, shrimp and fishing in the Mississippi Sound. Any aquatic species, plant or fish or mammal, which depends on the brackish combination of fresh and salt water will be destroyed. The Salt Dome project will deliberately turn pristine water into brine and create a Dead Zone in the gulf where it is dumped.

Meanwhile, about 2 years ago, not-so-far-away Tampa completed a \$150 million desalination plant. They need fresh water; we apparently don’t.

Three years after the rushed meeting in Jackson, about which we knew little, the DOE had a final EIS. We on the coast were dumbstruck, and our Representative, Gene Taylor, insisted that public hearings be conducted in the area that would be affected, which had never taken place previously (<http://www.gulfcoastnews.com/GCNnewsRichtonSaltDomeHearingsTaylor012408.htm>). So the DOE condescendingly scheduled three “open meetings” (<http://gulfconservationcoalition.com/docs/USDOE.SUP.EIS.Meeting.Notice.PDF>).

And what do we U.S. citizens get for our \$3.5–\$4 billion? We will have 160 million gallons of unrefined oil, supposedly enough to run the United States for 2 weeks. Here’s what has to be built just to deliver the crude to the Chevron refinery: http://fossil.energy.gov/programs/reserves/spr/Richton_WebSite_Fact_Sheet.pdf. You can almost hear the simple slide presentation, but behind it lie a lot of dead birds and fish. And note that one-half the oil goes to a Naval Station, not to civilians or businesses.

What about the environmental consequences? Well, the DOE has studied them carefully: http://www.fossil.energy.gov/programs/reserves/publications/Pubs-SPR/2006_SPR_EIS.html.

Click on chapter 3, section 3.6, “Water Resources.” Richton surface water analysis begins on p. 3–130. There are four pages of tables describing the impact on creeks and streams—generally the same phrase “Impaired use for aquatic life support.” Originally, I thought “N/A” in the tables must mean “not affected.” Nope: “not available.” They didn’t bother. For most of the surface water in the vicinity of Richton, the impact of the salt dome project is “impaired” or “not available.” It is hard for me to believe that the impairment extends so far upstream into tributaries . . . even to Black Creek, a U.S. Fish and Wildlife Service designated “Wild and Scenic River.”

After 2 weeks, then what? No water, no fish, no birds, and, presumably, the emergency oil supply is gone. Why not just spend the \$3.5 billion this project will cost on solar panels for American homes? At least they would last longer than 2 weeks—and a little fan, a little light, a few communication devices like TV or radio or Internet, all that means a lot in an emergency. We know. We lived through Katrina, and everything was not OK after 2 weeks.

Despite promises, we never saw any revisions to the EIS based on our many comments in 2008. To our knowledge, no scientists we recommended were consulted. The hearings were meant to placate the public, not to listen.

At a time when no one seriously questions that burning fossil fuels is changing our climate far more rapidly than we can control, our Government can’t seem to get off the teat. First we dig up the oil, then we dig another hole and put it back in the ground. It’s stupid, dirty, and dangerous to the water we need.

PREPARED STATEMENT OF THE COALITION OF NORTHEASTERN GOVERNORS

The Coalition of Northeastern Governors (CONEG) is pleased to provide this testimony to the Senate Committee on Appropriations Subcommittee on Energy and Water Development regarding fiscal year 2011 appropriations for the U.S. Department of Energy (DOE). The CONEG Governors request funding for the following Energy Efficiency and Renewable Energy Programs: \$300 million for the Weatherization Assistance Program and \$30 million for the Innovation in Weatherization Program, at least \$75 million in the base appropriations for the State Energy Program, and \$230 million for the Building Technologies Program. In addition, the Gov-

ernors request at least \$129 million for the Energy Information Administration, and sufficient funding for maintenance and operation of the Northeast Home Heating Oil Reserve. The Governors support the President's request for increased funding of solar energy, wind energy and electricity reliability programs; and also urge the committee to ensure that, through the U.S. Department of Energy, \$7.5 million is provided to maintain the critical networks and market development work of the National Biomass Partnership (previously known as the Regional Biomass Energy Program).

The Governors recognize the daunting fiscal challenges facing the subcommittee this year, and thank you for your past support for these vital programs. Continued investment in these very successful energy programs is a crucial step toward achieving the Nation's energy security, economic and environmental goals.

WEATHERIZATION ASSISTANCE AND STATE ENERGY PROGRAMS

The Nation's current economic situation has placed a new emphasis on the benefits of the Weatherization Assistance Program (WAP) and the State Energy Program (SEP). Working with all 50 States, the District of Columbia and U.S. Territories, these successful programs allow States to quickly and efficiently implement energy saving technologies and practices, creating green jobs and achieving real savings for families struggling with unaffordable home energy costs. The Governors thank the subcommittee for providing substantial funding for these crucial programs in the American Recovery and Reinvestment Act (ARRA). While there have been some challenges at the State and Federal level in ramping-up these programs and meeting new ARRA program requirements, States and the Federal Government have worked together to find effective solutions. More than one-half of the SEP funds (over \$1.8 billion) are committed, and spending of WAP funds is accelerating rapidly and on target to reach the goal of weatherizing 600,000 homes by March 2012. Continued base funding is needed in fiscal year 2011 to help sustain valuable green jobs and to realize and effectively assess the continuing energy and environmental benefits of these programs.

Weatherization Assistance Program.—The CONEG Governors request \$300 million in fiscal year 2011 for the WAP, plus \$30 million for continuation of the Innovation in Weatherization program. Weatherization is an immediate and effective tool to manage the energy use of low-income households. The need continues to be great. Forty-nine percent of these households are occupied by the elderly or disabled; and these households can spend as much as 20 percent of their annual income on home energy bills compared to just 3 percent by other households. Since its inception in 1976, WAP has weatherized more than 6.25 million low-income residences across the country. In addition to the stimulus funds, the program uses nearly \$1 billion in Federal, State, local, utility, and private funds to reach more than 150,000 homes each year.

Through a State-managed network of more than 900 local weatherization providers, WAP increases residential energy efficiency. The program, which provides specialized training and career development, creates a workforce trained in the most advanced assessment and installation techniques. Weatherization service providers perform comprehensive computerized energy audits of each home, and provide a package of efficiency measures tailored to the individual needs of each household.

Many of these weatherization measures include inexpensive, yet effective upgrades such as installing insulation; sealing ducts; and tuning and repairing heating and cooling systems. In addition, the program uses a "whole house" approach, incorporating advanced technologies to address comprehensive energy usage in low-income homes, as well as related health and safety improvements. DOE estimates that the program returns \$1.67 in energy-related benefits for every \$1 invested.

This successful public-private partnership creates considerable investments in local economies across the country; provides continued professional development for workers; and contributes to increased home values, and the health and safety of the Nation's most vulnerable citizens. The program yields benefits that are far-reaching and long-lasting.

The goal of the complementary Innovation in Weatherization program is to demonstrate new ways to weatherize low-income homes while lowering the Federal cost for residential energy retrofits. Through partnerships with organizations such as non-profits, labor unions, and private contractors, the program strives to obtain \$3 in non-Federal contributions for every \$1 invested by DOE.

State Energy Program.—The CONEG Governors request at least \$75 million in the base appropriations for the SEP in fiscal year 2011. Ensuring this base funding level is critical for the SEP to continue as the nationwide cornerstone of the State-Federal-private partnership for many energy efficiency and conservation programs.

Especially for the smaller States, the base SEP program allows them to dramatically expand program delivery and leverage non-Federal resources with Federal funds. SEP is vital to achieving energy efficiency and conservation in energy end-use sectors such as buildings, industrial, agriculture, transportation, and power generation. The program, which has a proven track record of effectiveness, assists States' initiatives that help realize national goals of greater energy efficiency; reduced energy costs; development of alternative and renewable energy resources; and reduced reliance on imported sources of energy. The SEP also helps States in their critical emergency preparedness activities, improving the security and reliability of energy infrastructure, and preparing for natural disasters.

SEP funding provides States with the flexibility to tailor their renewable energy and energy efficiency programs to maximize the effectiveness of the program's resources. The Northeast States have used SEP funds to support projects to update emergency plans to anticipate and respond to potential shortages of electric power, natural gas and deliverable fuels. SEP funds have also been used by State agencies to assist in reducing energy use in commercial and institutional buildings, fleets, and equipment; perform small business energy audits; and provide public information and education to local residents, small businesses, farmers, and others to make them aware of opportunities to reduce energy consumption and energy bills.

The modest (non-ARRA) Federal funds provided to the SEP are an efficient and effective Federal investment, yielding substantial and extensive energy and economic benefits. States can ensure that the energy improvements are delivered, since most SEP work is undertaken through leveraged agreements and reimbursable contracts. According to the most recent Oak Ridge National Laboratory study, \$1 in SEP funding yields: \$7.22 in annual energy cost savings; \$10.71 in leveraged funding; annual energy savings of 47,593,409 million source BTUs; and annual cost savings of more than \$333 million. The environmental benefits are equally as impressive resulting in an annual reduction of carbon emissions of 826 million metric tons—the same amount produced by 582,000 automobiles in a single year.

BUILDING TECHNOLOGIES

The CONEG Governors request \$230 million in fiscal year 2011 for the Building Technologies Program (BTP). The program has created unique and effective partnerships with States, industry, national laboratories, universities and manufacturers to improve the energy efficiency of new and existing buildings, and the equipment and systems within them.

According to the Department of Energy, buildings account for more than 70 percent of the electric energy consumed in the United States and are responsible for 38 percent of total U.S. carbon dioxide emissions. With roughly 15 million new buildings projected to be built by 2015, a tremendous opportunity exists for the development and deployment of energy efficient technologies and building practices. The potential environmental benefits and energy and cost savings are significant.

BTP develops and promotes deployment of technologies to make new and existing homes and buildings less energy intensive. One of the strategic goals of BTP is to create net zero energy buildings that, through a combination of on-site renewable energy and increased efficiency, can generate an equal or greater amount of energy than they consume from the grid. The program pursues this goal through complementary activities that include R&D; development and improvement of equipment standards and analysis; and introduction of new advanced technologies and the widespread use of highly efficient technologies already in the market.

BTP also collaborates with other DOE programs as well as partners of the highly successful ENERGY STAR program to increase awareness, availability and purchase of energy efficient appliances, lighting and windows. According to DOE, in 2006, ENERGY STAR saved 170 billion kilowatt hours—or almost 5 percent of the total 2006 electricity demand—and helped avoid greenhouse gas emissions equivalent to those from 25 million automobiles.

ENERGY INFORMATION ADMINISTRATION

The Governors support fiscal year 2011 funding for the Energy Information Administration (EIA) at least at the level of \$129 million. EIA is the Nation's foremost source of reliable independent information, analyses and forecasts on the energy produced, imported and consumed in the United States. As Congress and the administration continue to develop and debate critical energy and environmental strategies, EIA is increasingly and consistently called upon to provide unbiased, timely and reliable information. In addition, States rely on EIA data as the core of their information for energy emergency planning. New requirements included in the Energy Independence and Security Act of 2007, as well as the evaluation of an increas-

ingly more complex and interdependent energy industry has created a vastly increased workload for EIA and the need for more rigorous data collection and analysis.

A modest increase in funding in fiscal year 2011 will help ensure that EIA can continue to provide the most accurate and reliable information on the energy markets and industry.

NORTHEAST HOME HEATING OIL RESERVE

The CONEG Governors request sufficient fiscal year 2011 funding for maintenance and operation of the Northeast Home Heating Oil Reserve. The Nation's heightened emphasis on energy reliability and security places renewed importance on the Reserve.

Almost 70 percent of the 7.7 million households heating primarily with home heating oil are in the Northeast, making the region particularly vulnerable to the effects of supply disruptions and price volatility. The Northeast region is literally at the end of the energy product pipeline. Any disruption along the delivery infrastructure anywhere in the country negatively impacts the Northeast. The Reserve is strategically placed in ports along the northeast coast to respond rapidly and efficiently to any emergency supply interruption. The Reserve is designed to provide an emergency supplemental supply over a 10 day delivery period—the time required for ships to carry heating oil from the Gulf of Mexico to New York Harbor—in the event of a supply disruption or shortage in the Northeast. Adequate funding will ensure the Reserve is maintained in a high state of readiness and capable of completing an immediate drawdown if needed.

RENEWABLE AND RELIABLE ENERGY

Renewable, reliable energy contributes to the achievement of multiple regional and national goals, including lowering greenhouse gas emissions, increasing and diversifying domestic energy supply, creating new jobs, and enhancing the Nation's energy security. A strong Federal partner and consistent and sustained funding for solar energy, wind energy and electricity reliability programs are essential. Therefore, the Governors support the President's request for increased funding for these important programs.

The Governors also request that the subcommittee ensure that, through the U.S. Department of Energy, \$7.5 million is provided to maintain the critical networks and market development work of the National Biomass Partnership (previously known as the Regional Biomass Energy Program). The Partnership, a collaboration of five regional biomass energy programs created by Congress, is a critical link in the chain of research, resource production and technology commercialization that is essential to bringing bioenergy technologies successfully into the marketplace.

The States contribute significant resources to support the development of biomass fuels, technology, and infrastructure. The Partnership has demonstrated its ability to expedite deployment of the biomass fuels, technology, and infrastructure that is necessary to reach common goals of States and the Federal Government. In the Northeast alone, the Northeast Regional Biomass Program (NRBP) directly influenced \$24 million in biomass investments—69 percent of the overall biomass investment made in the region in 2003. Working with State, Federal and private sector officials, the NRBP has provided bioenergy education and training to nearly 3,000 people in the region and contributed to State-developed bioenergy policies and programs. However, the absence of a strong Federal partner threatens this State-private sector effort to better coordinate the institutional and physical infrastructure for deployment of sustainable biomass fuels and bioenergy technologies.

In conclusion, the Coalition of Northeastern Governors (CONEG) request that you provide \$300 million for the Weatherization Assistance Program and \$30 million for the Innovation in Weatherization Program, at least \$75 million in the base appropriations for the State Energy Program, \$230 million for the Building Technologies Program, at least \$129 million for the Energy Information Administration, and \$7.5 million for the work of the National Biomass Partnership. In addition, the Governors support the President's request for increased funding of solar energy, wind energy and electricity reliability programs, and sufficient funding for maintenance and operation of the Northeast Home Heating Oil Reserve.

PREPARED STATEMENT OF THE AMERICAN SOCIETY FOR MICROBIOLOGY

The American Society for Microbiology (ASM) is pleased to submit the following testimony on the fiscal year 2011 appropriation for the Department of Energy (DOE)

science programs. The ASM is the largest single life science organization in the world with more than 40,000 members. The ASM mission is to enhance the science of microbiology, to gain a better understanding of life processes, and to promote the application of this knowledge for improved health and environmental well being.

The ASM supports the administration's fiscal year 2011 budget of \$5.1 billion for the DOE Office of Science, a 4.4 percent increase from fiscal year 2010. The ASM endorses the administration's pledge to double funding for the DOE Office of Science by fiscal year 2017. The Office of Science funds intramural and extramural research that might not be undertaken otherwise due to its complexity or cutting edge and theoretical nature. However, such research leads to the technological innovations needed to enhance our economy, our workforce, and our environment.

The DOE's Office of Science is the largest sponsor of basic research for the physical sciences in the United States, and also supports substantial life sciences research. It supports more than 7,000 individual research projects at more than 300 academic institutions, and 10 DOE national laboratories. It also provides access to leading edge research facilities for extramural investigators, including an estimated 26,000 that will use these facilities in fiscal year 2011.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH (BER)

The Office of Biological and Environmental Research, within the DOE Office of Science, oversees research and facilities that support DOE's energy, environment, and basic research missions. BER sponsored research provides the foundational science underpinning DOE's goals for development of clean bioenergy sources, remediation and long term stewardship of legacy environmental contamination and understanding the impacts of climate change on Earth's ecosystems.

BER programs enable solutions for some of the Nation's most difficult energy related and environmental challenges by advancing our basic understanding of climate change, biofuels, carbon sequestration, remediation of subsurface contaminants, and interactions of biological and physical systems. Wide ranging studies of microbes are central to all of these efforts and include pioneering studies of the genetic potential of individual organisms and microbial communities in complex environments, as well development of new bioinformatics tools for effectively managing and utilizing large datasets to advance genome enabled scientific research.

GENOMIC SCIENCE

The BER Genomic Science program (formerly Genomics: GTL) accelerates the development of practical solutions to energy and environmental problems by understanding the integrated biological systems of microbes and plants that govern their structure and function. This program uses high throughput genome sequencing and cutting-edge systems biology research techniques to understand key biological processes, ranging from molecular-scale networks of single cells to community scale interactions of ecosystems. In addition to directly supporting DOE mission driven research efforts at academic institutions and DOE national laboratories, publicly accessible genomic and metagenomic sequence data produced by DOE facilities encourage and support innovation while helping to solve environmental problems and energize commercial biotechnology in the United States. Addressing complex environmental and energy problems requires innovative, cross cutting research. The Genomic Science program supports a wide range of interdisciplinary research efforts with a strong microbiological component. For example, a recent program, "Biological Systems Research on the Role of Microbial Communities in Carbon Cycling" seeks to develop new integrated research efforts in genome enabled systems biology, environmental microbiology, and modeling of biogeochemical processes aimed at understanding how shifts in environmental variables impact microbially mediated carbon cycling. Gaining better quantitative knowledge of these processes is critical for predicting the storage or release of carbon from ecosystems and potential levels of CO₂, methane, and other atmospheric greenhouse gases.

JOINT GENOME INSTITUTE (JGI)

BER funding supports the DOE Joint Genome Institute (JGI), which has sequenced over 450 microbial genomes, more than 200 "metagenomes" of microbial communities, and 25 plant genomes with energy and environmental significance. The JGI provides access for external researchers to its state of the art sequencing and bioinformatic capabilities. Current sequencing capacity (about four tera-base pairs per year) is continually expanding with advances in sequencing technology and computing. JGI researchers generate results that push the boundaries of genomics, sequencing organisms that degrade cellulose, capture carbon, and transform envi-

ronmental contaminants. Their discoveries help stakeholders make decisions about the selection of new bioenergy crops and cost effective bioenergy production.

BIOENERGY RESEARCH CENTERS

BER supports three DOE Bioenergy Research Centers (BRCs, established in 2007) tasked with developing innovative strategies for biofuels production. When created, the multidisciplinary Centers brought together teams of researchers from 18 of the Nation's leading universities, 7 DOE national laboratories, 1 nonprofit organization, and a range of private companies. Their mission is to perform fundamental research addressing barriers to economic production of energy from cellulosic biomass, and drastically to reduce the Nation's consumption of fossil fuels. Goals include identification of next generation bioenergy crops, discovery of enzymes and microbes that degrade biomass, and creation of microbe-mediated models of fuel production of bioethanol and other biofuels. Each center applies cutting edge technologies and research methods for a wide range of biomass sources while managing massive data sets in the search for tomorrow's clean energy.

Headquartered at DOE's Oak Ridge National Laboratory, the University of Wisconsin-Madison, and DOE's Lawrence Berkeley National Laboratory, the three BRCs are investigating microbial processes that can convert diverse crops, such as switchgrass and poplar, into usable fuels. Specific examples include the BioEnergy Science Center's approaches for screening samples from natural thermal springs to identify enzymes and microbes that effectively transform biomass at high temperatures, and to genetically engineer a lignocellulose degrading microbe for ethanol production. Researchers at the Great Lakes Bioenergy Research Center are developing more refined metabolic models of in microbes to enable design of metabolic engineering strategies for enhanced biofuel production. The Joint BioEnergy Institute is pursuing synthetic biology research on microbial synthesis of a variety of hydrocarbon compounds with higher energy content than ethanol and better compatibility with existing fuel distribution infrastructure.

BASIC ENERGY SCIENCES (BES)

The Office of BES, administered within the Office of Science, supports fundamental research to understand, predict, and control matter and energy at electronic, atomic, and molecular levels, thus providing the foundations for new energy technologies and supporting DOE missions in energy, environment, and national security. The portfolio supports work in the natural sciences, emphasizing fundamental research in materials sciences, chemistry, geosciences, and aspects of biosciences. BES also operates sophisticated state of the art equipment and facilities open to investigators from private institutions, universities, and national laboratories. Research highlights include determination of the structure and organization of the highly efficient light harvesting complex in green sulfur bacteria, elucidation of protein synthesis mechanisms by methane producing bacteria, characterization of critical components of algal light harvesting complexes, and determination of the biosynthetic pathway for methane production from CO_2 and hydrogen.

In 2009, BES Energy Biosciences evolved into two complementary and synergistic programs, Photosynthetic Systems and Physical Biosciences. Both programs support unique areas of fundamental research on plant and non-medical microbial systems.

PHOTOSYNTHETIC SYSTEMS

The BES Photosynthetic Systems program supports fundamental research on the biological conversion of solar energy to chemically stored forms of energy, bringing together biology, biochemistry, chemistry, and biophysics approaches to study natural photosynthesis and related processes. Advances in genomics technologies such as metabolomics along with increased availability of plant genomic sequences are also providing new opportunities to leverage the strengths of the Photosynthetic Systems program in molecular biology and biochemistry with powerful capabilities in imaging and computation. Example topics include light harvesting, exciton transfer, charge separation, transfer of reductant to carbon dioxide, and the biochemistry of carbon fixation and carbon storage. Emphasized areas are those involving strong intersections between biological sciences and energy-relevant chemical sciences and physics, such as in self assembly of nanoscale components, efficient photon capture and charge separation, predictive design of catalysts, and self-regulating/repairing systems. The program aims to provide a critical scientific knowledge base that can inspire the roadmap for artificial photosynthesis and enable new strategies and technologies for more efficient generation of biomass as a renewal energy source.

PHYSICAL BIOSCIENCES

The BES Physical Biosciences program combines experimental and computational tools from the physical sciences with biochemistry and molecular biology. The goal is increased fundamental understanding of the complex processes that convert and store energy in plants and non medical microbes, including archaea. Examples of research supported by this program include studies that investigate the mechanisms by which energy transduction systems are assembled and maintained, the processes that regulate energy relevant chemical reactions within the cell, the underlying biochemical and biophysical principles determining the architecture of biopolymers and the plant cell wall, and active site protein chemistry that provides a basis for highly selective and efficient bioinspired catalysts. Combined with efforts in molecular biology and biochemistry, increased use of physical science and computational tools (ultrafast laser spectroscopy, current and future x-ray light sources, quantum chemistry) to probe spatial and temporal properties will give us an unprecedented architectural and mechanistic understanding of biological systems and allow the incorporation of identified principles into the design of bio-inspired synthetic or semi-synthetic energy systems.

EPSCoR

The BES administered Experimental Program to Stimulate Competitive Research (EPSCoR) also supports a significant sector of the Nation's energy research, distributing university grants in a number of States across the country. EPSCoR's interdisciplinary program areas include, among many others: biological and environmental science, advanced computer science, renewable energy science, climate change, genomics, and science education. EPSCoR has traditionally provided academic incubators for innovation and economic recovery.

RESEARCH INFRASTRUCTURE AND THE NATION'S WORKFORCE

More than 30,000 scientists and engineers work at DOE laboratories and technology centers, but many more are supported through grants and fellowships, or the use of cutting edge facilities and equipment that often are one of a kind. An example was last September's announcement of up to \$12.5 million in Recovery Act funding for at least 80 graduate fellowships to U.S. students pursuing advanced STEM-related degrees, through the Office of Science's new Graduate Fellowship program.

DOE's Office of Science has also initiated an Early Career Research Program, designed to bolster the Nation's scientific workforce by providing support to exceptional researchers during the crucial early career years when many scientists do their most formative work.

Another Office of Science program, Workforce Development for Teachers and Scientists, specifically targets workforce shortages and provides college undergraduates and K-12 teachers with DOE laboratory experiences, designed to attract more young Americans into the STEM workforce.

The Office oversees 10 world class facilities: the Ames, Argonne, Brookhaven, Lawrence Berkeley, Oak Ridge, Pacific Northwest, and Princeton Plasma Physics national laboratories, plus the Fermi, Thomas Jefferson, and SLAC accelerator facilities. These institutions encourage use by outside researchers and students, typically without cost, if results are posted for public knowledge. Each SC facility is an invaluable resource of unique research tools for scientific specialists. The Environmental Molecular Sciences Laboratory at the Pacific Northwest National Laboratory has hosted more than 10,000 scientists from all 50 States and more than 60 countries since its opening in 1997. This year, the DOE will permit extramural use of roughly 1.3 billion supercomputer processor hours at its Argonne and Oak Ridge facilities, awarded to researchers whose projects would be impossible without petascale (quadrillion calculations per second) computing.

CONCLUSION

The ASM supports increased funding for the DOE Office of Science in fiscal year 2011 and urges Congress to fund the Office of Science with at least \$5.1 billion. The diverse Office of Science programs and their successes advance the DOE's strategic mission to sustain the pace of scientific discovery and to educate and train a vital scientific workforce. Global climate change, clean energy, and pristine environments are challenges that demand sustained responses from the United States' science and technology sectors. DOE funded science and engineering are integral to our Nation's search for solutions. The Office of Science leads this effort with notable basic and applied energy research, which often is unique in its complexity, technical requirements, or high risk, high impact design.

The ASM appreciates the opportunity to provide written testimony and would be pleased to assist the subcommittee as it considers the fiscal year 2011 appropriation for the DOE.

PREPARED STATEMENT OF THE ELECTRIC DRIVE TRANSPORTATION ASSOCIATION

The Electric Drive Transportation Association (EDTA) is the cross-industry trade association promoting the advancement of electric drive technology and electrified transportation and we are writing regarding the fiscal year 2011 request for the Department of Energy's Vehicle Technologies and other electric drive programs.

Our members include vehicle manufacturers, battery and component manufacturers, utilities and energy companies, and smart grid and charging infrastructure developers. We are committed to realizing the economic, security, and environmental benefits of displacing oil with battery electric, hybrid, plug-in hybrid and fuel cell vehicles.

The Nation is moving toward an electrified fleet and the electric drive industry is advancing into the marketplace as rapidly as possible. Electric drive is already in use in passenger cars, commercial trucks, neighborhood electric vehicles, public transport buses, tractors and ground support equipment. As the industry invests in research and development, advanced manufacturing and coordinated deployment initiatives, the Department of Energy's continued commitment to fast-tracking electrified transportation is critical to our success.

We support the fiscal year 2011 budget's focus on advancing electric drive vehicle technologies that will reduce petroleum consumption and air pollutants while increasing energy security and global competitiveness. Like the electric drive industry itself, the Department of Energy is undertaking crosscutting efforts to move electric drive vehicles and infrastructure forward.

In particular, we believe that the requested increases for batteries and electric drive research and development (in a separate Vehicle Technologies program in the fiscal year 2011 request) can accelerate critical cost reduction and performance advancements. The additional efforts funded in the Technology Integration account's Clean Cities program will support the industry's own efforts to expand deployment of electric drive vehicles and recharging infrastructure. Establishment of a batteries and energy storage "innovation hub" in the Office of Science ensure that we continue pushing for the next breakthroughs even as we are moving electric drive vehicles into the market and the mainstream.

In addition to these essential investments, we also see areas in which the budget request misses key opportunities to advance a diverse portfolio of electric drive vehicles. Specifically, the Department of Energy has established a program and a pathway for building U.S. manufacturing capacity for advanced vehicles in the Advanced Technology Vehicle Manufacturing (ATVM) program. Although the program had more applicants establish electric drive manufacturing in the United States than funds, the fiscal year 2011 budget does not request any additional new award resources for the program. Additional funds for the ATVM program will promote industry investment in U.S. manufacturing, speed the vehicles to market and help build the foundation of the green jobs economy.

Another area in which the request is missing an opportunity is in the hydrogen and fuel cell programs, specifically as it relates to development of fuel cell electric vehicles and hydrogen refueling infrastructure. Fuel cell electric vehicles are important electric vehicle options because of their performance in diverse vehicle applications. The industry, working with the Department, has met critical program milestones in reducing cost, enhancing performance and deploying fuel cell electric vehicles for real world use. Looking beyond today's fleet, the National Academy of Science has also emphasized that achieving U.S. energy security and environmental goals will require a portfolio of advanced technology vehicles, which needs to include zero-emission fuel cell options.

The fiscal year 2011 budget request maintains the Department's commitment to hydrogen and fuel cell research, which we appreciate and support. However, at \$37 million below last year's funded level—a 21 percent cut in funding—the commitment is a tepid one. The request would eliminate all fuel cell electric vehicle deployment activities in Technology Validation and "defer" funding for early market development. This short-sighted approach undercuts the industry's own investments, slows momentum to commercialization and will hurt consumer confidence in emerging markets.

We urge you to extend the Technology Validation demonstration for an additional year to provide technology insertion and to ensure that funding for vehicle and infrastructure deployment, market transformation, as well as education and other en-

abling activities, is sufficient to enable the industry to build on technology and market achievements.

As a partner in the effort to establish a secure and sustainable transportation sector, the Department of Energy is accelerating technology breakthroughs, promoting investment in manufacturing capacity and speeding deployment of vehicles and infrastructure. We are pleased that Department's fiscal year 2011 budget builds on its commitment to transportation electrification with increases for vehicles and recharging infrastructure development and deployment. We also respectfully ask that you improve on that effort by supporting advances in the full electric drive portfolio: battery electric, hybrid and fuel cell electric vehicles.

We thank you for your consideration.

PREPARED STATEMENT OF THE NUCLEAR ENERGY INSTITUTE

The Nuclear Energy Institute¹ (NEI) supports fiscal year 2011 funding for the following Department of Energy programs and the Nuclear Regulatory Commission:

- Innovative Technology Loan Guarantee Program Office—\$38 million for administrative expenses and \$36 billion in new loan guarantee authority for nuclear power projects
- Fuel Cycle Research and Development—\$201 million
- Reactor Concepts Research, Development and Demonstration—\$195 million
- Nuclear Energy Enabling Technologies—\$99.3 million
- Integrated University Program—\$45 million
- Advanced Test Reactor User Facility—\$20 million
- Idaho Facilities Management—\$177.5 million
- Radiological Facilities Management—\$66.8 million
- Environmental cleanup at DOE sites—\$6 billion
- Nuclear Regulatory Commission budget—\$1 billion

America's nuclear energy facilities in 2009 continued a decade of exemplary performance. Nuclear energy continues to surpass all other electricity sources with an industry average capacity factor of 90.5 percent. This reliability enabled the Nation's 104 reactors to produce approximately 800 billion kilowatt-hours of electricity—enough for about 80 million homes—at production costs lower than coal and natural gas-fired power plants. Nuclear power plants in 31 States generate more than 70 percent of the U.S. electricity that comes from carbon-free sources. NEI believes the budget proposed for DOE's Office of Nuclear Energy is indicative of the administration's belief that nuclear energy is essential to America's future electricity supply, energy security and greenhouse gas emission reduction goals.

URANIUM ENRICHMENT D&D FUND TAX UNDUE BURDEN ON UTILITY RATEPAYERS

NEI opposes the proposed \$200 million annual tax on utilities to pay yet again for the decommissioning and decontamination fund at DOE uranium enrichment facilities.

The Obama administration is seeking reinstatement of the uranium enrichment decontamination and decommissioning fund, with a proposed tax on electric utilities of \$200 million a year through 2026. Electric utilities have already paid twice for decommissioning and decontamination at uranium enrichment plants that originally were operated by DOE—first as part of the price for uranium enrichment services from the facilities and again under provisions of the Energy Policy Act of 1992. Under the 1992 law, the tax on utilities generated \$2.25 billion, adjusted for inflation. The President's fiscal year 2011 budget would impose the tax yet a third time for cleanup at these sites, representing a new tax on all Americans. This proposal is unnecessary given the Federal fund for this cleanup program has a balance of \$4.6 billion. A proposal to reinstate the fund in the fiscal year 2010 budget was defeated by Congress.

INDUSTRY SUPPORTS \$36 BILLION FOR INNOVATIVE TECHNOLOGIES LOAN GUARANTEE PROGRAM

The nuclear industry appreciates the support provided by the subcommittee for the DOE loan guarantee program for nuclear energy plants and uranium fuel cycle

¹The Nuclear Energy Institute is the industry's policy organization, whose broad mission is to foster the beneficial uses of nuclear technology in its many commercial forms. Its membership, more than 350 corporate members in 17 countries, includes every U.S. utility that operates a nuclear power plant as well as international utilities, plant designers, architect and engineering firms, uranium mining and milling companies, nuclear service providers, universities, manufacturers of radiopharmaceuticals, universities, labor unions and law firms.

facilities. NEI urges the subcommittee to approve the administration's proposal to add \$36 billion in loan volume for nuclear energy plants. The industry has demonstrated the need for this new authority: 10 nuclear power projects reportedly submitted Part II loan guarantee applications representing \$93.2 billion in loan volume. Two uranium enrichment projects submitted applications seeking \$4.8 billion, more than double the available amount.

The loan guarantee program for nuclear energy is self-financing, with project sponsors responsible for underwriting the cost of providing the credit support to the Federal Government. Properly implemented, there will be no cost to the taxpayer. In addition, reducing the cost of capital will reduce project costs and lower electricity prices for all consumers. Southern Co. projects that its \$3.4 billion share of the \$8.3 billion loan guarantee for two reactors at the Vogtle plant in Georgia is expected to save consumers \$15 million to \$20 million in interest costs annually over the life of the loan. The nuclear industry is confident that new nuclear generating capacity will be competitive and is not aware of any credible mainstream analysis that shows otherwise. In last year's National Academies' report, *America's Energy Future*, new nuclear capacity competes well against all other baseload options in a carbon-constrained world.

NEI believes the loan guarantee program's credibility and integrity rest on demonstrable proof that the lender's interest is well-protected. NEI supports rigorous due diligence being conducted by the DOE loan guarantee program office. In addition to legal, financial and market analysis of proposed projects, DOE will use an independent engineer to monitor construction progress and certify that construction is proceeding according to plan before authorizing each month's draw against the guaranteed loan. DOE's due diligence process, together with the fact that new nuclear power plants will be competitive, should ensure that the probability of default—and thus risk to the taxpayer—is extremely low. NEI urges Congress to support DOE's request to fully cover the program's administrative costs in fiscal year 2011, which will result in a net zero appropriation given offsetting collections from loan applicants for nuclear energy projects.

ENSURING ADEQUATE FUNDING FOR THE NUCLEAR REGULATORY COMMISSION

The industry supports fiscal year 2011 funding at the NRC's requested level. However, the industry recommends that NRC appropriately, and more expeditiously, resolve long-standing regulatory issues. The industry applauds the continued oversight of the NRC by Congress to prioritize agency actions. The agency should be more transparent in its budgeting to reveal planned staffing and resource needs by individual divisions. This would demonstrate to Congress, the public and the industry, which pays 90 percent of the NRC's budget, that the budget fairly reflects those activities that should be allocated toward licensee-specific charges rather than general license fees. NEI supports continuation of the Integrated University Program, which includes support for universities and community colleges.

INTEGRATED USED FUEL MANAGEMENT PROGRAM

The administration's decision to withdraw the construction license application for a Federal repository at Yucca Mountain, Nevada is not a repudiation of the Government's obligation under the Nuclear Waste Policy Act to dispose of used nuclear fuel from commercial reactors and defense applications. NEI does not support the termination of the Yucca Mountain repository project. Any effort to shut down the site and remediate it is premature. Numerous State and local governments and the National Association of Regulatory Utility Commissioners are seeking admission to the NRC licensing proceeding to oppose DOE's withdrawal of the application. Several opponents also have brought suit to stop this action. The project should proceed and be funded so that the technical review of the license application is completed. If the NRC licensing proceeding for the project is terminated, it should be done in a manner that would permit it to be restarted. Project records, tests, samples, etc. should be preserved so that they can be used should the project be resumed.

If the Yucca Mountain project is terminated, consumer payments into the Federal Nuclear Waste Fund should be suspended for the period of time for which there is no waste management program against which to assess costs. Termination of the Yucca Mountain project does not affect the NRC's pending revision to its "waste confidence" findings nor affect the standard contract for used reactor fuel management between DOE and utilities.

NEI supports the work of the Blue Ribbon Commission on America's Nuclear Future, but recommends that the NRC continue technical review of the Yucca Mountain license application to completion (with the adjudicatory proceeding held in abeyance) to inform the deliberations of the commission. The industry supports a

three-part integrated used fuel management strategy that includes: (1) On-site storage at reactor sites and development of centralized storage at volunteer locations; (2) Research, development and demonstration of advanced fuel cycle technologies; and (3) Development of a permanent repository.

The nuclear industry consistently has supported research and development of the advanced fuel cycle technologies proposed in the Fuel Cycle Research and Development program (\$201 million). DOE's plans should be brought into compliance with any recommendations of the blue ribbon commission that Congress ultimately accepts.

DEVELOPMENT OF ADVANCED REACTOR TECHNOLOGIES

The administration has proposed several new initiatives for the Office of Nuclear Energy for fiscal year 2011. NEI is encouraged by DOE's development of a road map on milestones and annual funding so that Congress and the public will support these new program initiatives. NEI supports \$195 million in funding for the Reactor Concepts Research, Development and Deployment program in fiscal year 2011. Within this program, \$103 million in funding would be allocated for the Next Generation Nuclear Plant (NGNP) program. Westinghouse Electric Co. and General Atomics will begin work on next generation reactor designs after being awarded \$40 million last month by the Department of Energy. Advanced reactor technology can displace the use of fuels such as natural gas for producing process heat, thus enhancing U.S. energy security, stabilizing energy prices and improving the use of finite natural resources.

NEI also recommends \$25.7 million in fiscal year 2011 for the Light Water Reactor Sustainability program, focusing on materials science and materials performance in reactor operations; \$38.8 million for the Small Modular Reactors program with the possibility of additional funds if justified; and \$21.8 million for the continuation of the Generation IV program on advanced reactor concepts. NEI supports \$99.3 million for the new Nuclear Enabling Technologies program, including the Modeling and Simulation Hub as suggested by the administration but recommends DOE seek industry input for program plans as the hub focuses on materials science and improving reactor component manufacturing.

MAINTAIN FUNDING FOR WORKFORCE AND INFRASTRUCTURE

Congress in the last 2 years has approved \$45 million for an Integrated University Program. NEI requests the committee maintain DOE and NRC funding for this program to effectively educate technicians and professionals for careers in all sectors of nuclear science and technology. Additionally, NEI recommends that the subcommittee support \$5 million for the DOE Research Reactor Infrastructure program for new fuel and shipping containers, reactor instrumentation and upgrades, and used fuel services. Industry also supports \$20 million for the Advanced Test Reactor (ATR) National Scientific User Facility at Idaho National Lab as part of the lab's \$177.5 million facilities management budget in fiscal year 2011. This funding supports a vital facility needed to evaluate and improve nuclear fuel and materials behavior and performance for DOE, university and industry projects.

ENVIRONMENTAL CLEAN UP

NEI supports the budget request of \$6 billion for DOE's Environmental Management Office.

PREPARED STATEMENT OF THE ENERGY SCIENCES COALITION

The Energy Sciences Coalition (ESC) strongly supports the administration's goal to double funding for the Department of Energy's (DOE) Office of Science between fiscal year 2007 to fiscal year 2017, a goal that is consistent with the bipartisan American COMPETES Act and the recommendations in the National Academies' 2005 report "Rising Above the Gathering Storm." To that end, the ESC supports funding of at least \$5.121 billion for the Office of Science in fiscal year 2011—an amount equal to the level requested by the administration for fiscal year 2011 and a 4.4 percent increase over fiscal year 2010.

The ESC is aware of the significant fiscal constraints facing the administration and Congress this year. Weighing the economic competitiveness and national security value of investments in Office of Science programs and facilities, however, we believe that funding for the Office of Science of at least the amount included in the budget request can easily be justified. The Office of Science is the Nation's primary sponsor of basic research in the physical sciences, and the facilities and research

it supports are vital to ensuring our energy security and national competitiveness, meeting our environmental challenges, and producing new jobs and innovative technological breakthroughs that will fuel our economy.

Specifically, this funding will:

- Allow the Office of Science to maintain and strengthen DOE's core research programs at both the DOE national laboratories and at universities;
- Support investigators at more than 300 academic institutions and from all DOE national laboratories;
- Enable support for 27,000 PhDs, postdoctoral associates, and graduate students in fiscal year 2011—approximately 2,000 more than were supported in fiscal year 2010;
- Ensure maximum utilization of DOE research facilities by 26,000 researchers from universities, national laboratories, industry, and international partners; and
- Allow the Office of Science to develop and construct the next-generation facilities necessary to maintain U.S. preeminence in research and development in the physical and biological sciences, computing, and many other critical scientific fields.

The ESC therefore urges Congress to support the administration's fiscal year 2011 budget request and invest at least \$5.121 billion in the DOE Office of Science.

ENDORING ORGANIZATIONS

American Chemical Society	Rutgers, The State University of New Jersey
American Institute for Medical and Biological Engineering	Semiconductor Industry Association
American Institute of Physics	Semiconductor Research Corporation
American Mathematical Society	Society for Industrial and Applied Mathematics
American Physical Society	Southeastern Universities Research Association
American Society for Engineering Education	Stanford University
American Society for Microbiology	Stony Brook University
American Society of Plant Biologists	Texas A&M University
Arizona State University	Tulane University
ASME	The University of California
Association of American Universities	University of California, Berkeley
Association of Public and Land-grant Universities—APLU	University of California, Davis
ASTRA, The Alliance for Science & Technology Research in America	University of California, Irvine
Battelle	University of California, Los Angeles
Biophysical Society	University of California, Merced
California Institute of Technology	University of California, Riverside
Council of Energy Research and Education Leaders	University of California, San Diego
Duke University	University of California, San Francisco
Florida International University	University of California, Santa Barbara
Georgia Institute of Technology	University of California, Santa Cruz
Harvard University	University of Central Florida
Indiana University	University of Chicago
Jefferson Science Associates, LLC	University of Hawaii System
Krell Institute	University of Illinois
Massachusetts Institute of Technology	University of Maryland
Materials Research Society	University of Massachusetts
Michigan State University	University of Michigan
North Carolina State University	University of Minnesota
The Ohio State University	University of New Mexico
The Optical Society	University of Pittsburgh
Oregon State University	University of Southern California
Princeton University	University of Washington
	University of Wisconsin-Madison
	Vanderbilt University
	Washington State University
	Washington University in St. Louis

PREPARED STATEMENT OF IBACOS, INC.

IBACOS (Integrated Building and Construction Solutions) urges the Subcommittee on Energy and Water Development to provide \$46 million for the Build-

ing America Program at the Department of Energy's (DOE) Office of Building Technologies in fiscal year 2011 Appropriations under the Office of Building Technologies, Residential Building Integration, Energy Efficiency and Renewable Energy. We further urge that the following language is included to ensure that the competitively selected Building America teams are funded at a percentage comparable to their historic funding: Of these funds, \$35 million shall be provided for the research activities of the competitively selected Building America research teams, the Building America lead research laboratory, and other national laboratories conducting research to achieve Building America's specified energy performance targets.

EXECUTIVE SUMMARY

Residential Buildings currently account for over 20 percent of the primary energy consumed by the United States. Since 2000, over 12 million new homes have been constructed, and each year over a million homes are remodeled. Significant energy savings can be achieved at minimal increases in construction costs provided that a long term and consistent commitment is made to work in partnership with the housing industry. DOE's Building America Program has developed an industry-driven research approach to develop solutions that can reduce the average energy use in new housing by 50 percent by 2015, providing significant benefits to homeowners in terms of reduced utility bills and significant benefits to the U.S. economy by maintaining housing as a major source of jobs and economic growth. If building in significant energy savings isn't done now, the Nation risks using an extravagant amount of energy in the future. In order to reduce reliance on foreign energy supplies and to support the stabilization of greenhouse gas emissions, we must invest appropriately in research in the areas of technology, systems integration, and building and renovating processes to upgrade the performance of our housing stock, otherwise, we are mortgaging our future.

Research, development, and outreach activities performed by the competitively selected industry Teams in the Building America Program are the key element in the DOE strategy to reduce energy consumption in residential buildings. The Teams' activities focus on increasing the performance of new and existing homes by developing advanced energy systems that can be implemented on a production basis, while meeting consumer and building performance requirements.

The Teams have been working on improving efficiency in housing since 1992, with successes being embodied in EPA's Energy Star Home program and DOE's Builders Challenge, and they are now focused on the more difficult task of meeting DOE's goals to create strategies to achieve 50 percent whole house savings by 2015, and ultimately Zero Energy Homes (ZEH)—homes that produce as much energy as they use on an annual basis—broad spread in the market by 2025.

A NEW FRONTIER IN RESEARCH—ZERO ENERGY HOMES

The research needed to develop systems and strategies to achieve DOE's short and longer term goals is not simply applying lessons learned; rather, fundamental research is still required. This R&D, performed by the Building America Teams, is truly high-need, high-risk, high-payoff research.

The research required to meet the goals of 50 percent savings and ZEH is costly and high risk:

- Significant basic research is required to develop and integrate new technologies into homes before they are proven effective enough to be applied in the field.
- This research is costly and risky, and will never be undertaken by the industry alone.
- The life cycle of this research is significantly longer than that of comparable industries.
- The homebuilding industry is extremely fragmented, with homebuilders having little ability to drive research, and a significantly lower than average financial commitment to investing in research.
- Builders need successful business models to apply related to effectively and profitably integrating new technologies and strategies.

The research required to meet the goals of 50 percent savings and ZEH is also high-payoff for the following reasons:

- Once constructed, homes have a long lifespan, providing the opportunity for a durable long term reduction in energy use.
- Effective strategies to reduce energy use will positively impact consumers, as well as the Nation's energy demand.

- Successful research into integration strategies will allow new, high-risk technologies to be adopted more quickly and effectively, and can identify code barriers that might prevent energy efficiency and market adoption.

BUILDING AMERICA COMPETITIVE TEAMS: SUCCESSES IN THE REAL WORLD

The work of the Teams allows industry leadership to drive cost effective solutions that move us toward Zero Energy Homes. Building America Builder partners have shown that homes with energy savings up to 40 percent can be cost competitive and valued by consumers in today's marketplace. These homes have lower energy bills and operating costs, and increased building durability as well as occupant safety, health, and comfort. The teams have been instrumental developing cost effective solutions at the 30 percent and 40 percent energy saving levels currently used by regional builders and divisions of national builders such as Pulte Homes, David Weekly Homes, K Hovnanian Homes, Beazer Homes, Centex Homes, Imagine Homes, Ideal Homes, Veridian Homes, Tommy Williams, to name a few. The more than 500 private sector partners who work with the Teams are experts in home construction, building products and supply, architecture, engineering, community planning, and mortgage lending. All construction material and labor costs for homes and communities constructed by Building America Teams' builders are provided by DOE's private sector partners.

In addition to performing the fundamental research needed to advance the energy efficiency of our Nation's housing stock, the Building America Teams also provide recommendations to a broad range of residential deployment partners including the EPA's Energy Star Homes Program, HUD's Partnership for Advancing Technologies in Housing Program, DOE's Builders Challenge, and many industry associations and universities.

DOE's Role in the Residential Buildings Research Partnerships:

- Catalyzing research in residential construction necessary to increase the energy performance, and bringing together industry partners to leverage research dollars and expertise.
- Matching advanced product research programs to the system integration efforts of the Building America Teams to ensure realistic approaches to increasing energy performance.
- Reducing risk and increasing reliability of emerging technologies.
- Providing scientific expertise through the involvement of the National Renewable Energy Laboratory (NREL) and other national laboratories.
- Sharing critical information about research with several thousand associated building industry professionals and leveraging information through EPA, HUD, and private sector energy efficiency programs.

Program Goals:

- Reduce energy use in America's housing stock by 50 percent by 2015 and provide ZEH broad spread in the market by the year 2025, integrating renewable energy when and where practical.
- Research and develop the systems and strategies necessary to allow our Nation to deliver high performance houses in order to increase our national energy security.

Program Status:

Through the competitively selected Teams, Building America works closely with America's lead production builders, who produce approximately 50 percent of the Nation's new housing stock. More than 30,000 homes have been constructed in 34 States with energy savings up to 40 percent. While potentially up to 30 percent of the Nation's builders could reasonably achieve a 30 percent energy saving target, it is estimated that less than 1 percent of the builders can achieve 50 percent. To develop solution sets to help builders move forward to the 50 percent level, all areas of energy use in the house must be addressed. This means increased complexity on the part of the builder and all associated trade partners, suppliers, and manufacturers, which translates to significantly more effort on the part of each Building America Team lead. Increased funding is needed to address DOE's energy efficiency goals, and provide the increased need for technical support to lead builders, contractors, and suppliers for effective research and participation in the program. The Building America research to date has shown that to achieve the 50 percent and ZEH goals, every energy related system in the house must be analyzed and strategies for energy savings developed. This level of effort is significantly greater than for the 30 percent or 40 percent goals, where only major energy end uses in the house needed to be addressed. On a forward moving basis, the stated DOE goals of the program are unreachable without significant Team funding.

Recommendation for Fiscal Year 2011 Funding:

Provide \$46 million, for the Building America Program at the DOE's Office of Building Technologies in fiscal year 2011 appropriations (under the Office of Building Technologies, Residential Building Integration). This does not include new funding to initiate a retrofit research and development program. Additionally, include language as follows to ensure that the competitive teams are funded at a percentage comparable to their historic funding:

"Of these funds, \$35 million shall be provided for the research activities of the competitively selected Building America research teams, the Building America lead research laboratory, and other national laboratories conducting research to achieve Building America's specified energy performance targets"

PREPARED STATEMENT OF THE NATIONAL HYDROPOWER ASSOCIATION

The National Hydropower Association (NHA)¹ appreciates the opportunity to submit this statement regarding hydropower Research and Development funding priorities for the fiscal year 2011 appropriations budget cycle.

NHA requests a minimum of \$100 million in fiscal year 2011 Energy and Water Appropriations for the Department of Energy's Waterpower Program to support initiatives across all hydropower technology sectors. The types of technologies covered are conventional hydropower including pumped storage and emerging technologies that access the energy in ocean waves, and the flowing water in rivers, man-made channels and those caused by tides.

A \$100 million funding level will go far to support a national goal to double U.S. capacity of renewable hydropower, the research needed to increase production and create 700,000 new industry sector jobs across every State of the country.

Investment in hydropower R&D will drive innovation across the economy and maintain American competitiveness and create jobs. In addition, the Nation's largest and most reliable renewable electricity resource will be positioned to address the multiple challenges of global climate change, increasing demand for clean energy, U.S. energy security and national economic recovery.

HYDROPOWER'S CURRENT AND POTENTIAL CONTRIBUTION

The goal of the National Hydropower Association and its members is to provide clean, climate-friendly, reliable baseload electricity today and in the future through the responsible development and expanded use of conventional hydropower, pumped storage and new technologies, such as ocean and tidal energy and small irrigation power.

As the largest source of renewable electricity in the United States, currently providing 7 percent of U.S. generation and avoiding 225 million metric tons of carbon emissions a year, hydropower is poised to do more. Recent studies demonstrate that the Nation's hydropower capacity could double by 2025 mostly by maximizing existing infrastructure and without the need to build new impoundments.²

The evidence supporting these projections is credible, current and prolific. For example, more than 50,000 MW of new hydropower capacity is in the Federal Energy Regulatory Commission (FERC) pipeline awaiting review and approval for development, with additional projects on the drawing board for consideration.

Second, applications for DOE Waterpower program funding opportunities last year far outnumbered available funds—both for new and conventional technologies. For example, in the most recent funding announcement on November 4, 2009, the Department of Energy awarded \$32 million to 7 projects to pursue upgrades to existing hydropower facilities, although dozens more projects submitted applications.

Finally, new studies project the doubling (or even tripling) of hydropower's capacity by 2025. According to an October 2009 report conducted by Navigant Consulting, approximately 60,000 MW of new hydropower is possible by 2025. This represents enough electricity to power every household in Los Angeles, New York and Chicago. In addition to providing affordable and clean power, the report found that 60,000 MW of new hydropower capacity also will result in 700,000 cumulative direct and indirect American jobs, with an additional 700,000 induced jobs.³

However, development of some of this capacity requires necessary and needed R&D investment (both short and long term) in order to advance the state of the

¹ NHA is a non-profit, national trade association dedicated to promoting the Nation's largest renewable resource and advancing the interests of the hydropower and new ocean, tidal, conduit and instream hydrokinetic industries and the consumers they serve.

² In fact, of the approximately 80,000 dams in the U.S. only about 3 percent have hydropower facilities associated with them.

³ http://hydro.org/Jobs%20Study/NHA_JobsStudy_Final%20Report_Final_Sept%2020.pdf.

technology, study potential impacts, understand the extent of the developable resource, and more. In particular, Government funding is needed at the front end when private investments would not recoup the full value of the resulting social good. This is especially true in the case of basic research and development investments, where the private sector tends to under-invest.

HYDROPOWER'S R&D NEEDS SPAN ALL INDUSTRY SECTORS—CONVENTIONAL, NEW HYDROKINETIC TECHNOLOGIES AND PUMPED STORAGE

Although conventional hydropower is one of America's longest serving electric generation resources, the industry is on the vanguard of new technology development and project expansion.

Technology advancements in the industry will allow facilities to add capacity and increase generation reduce impacts on environmental resources, and maximize water use efficiency in a time of increasing and competing needs for water from both power and non-power users.

Maximizing the existing hydropower system, as well as building on existing non-powered dams, are some of the lowest cost options per kilowatt hour for increasing renewable energy generation. However, these projects are also larger, more capital intensive up-front, experience longer development timelines due to licensing, manufacturing and construction, and require Government R&D support to prove out technology advancements to Federal and State resource managers as well as other stakeholders.

For the ocean and tidal energy and instream hydrokinetic industries, the potential resources are tremendous with marine projects that could be sited close to load centers in the Northwest, California, Florida, and the Northeast as well as inland waterway projects that could be sited throughout the country. In addition, hydrokinetics may serve pressing power needs in remote communities as a distributed power resource, such as in Alaska.

The wave, tidal, and instream hydrokinetic industry is making great strides toward commercialization, but still requires significant R&D support to move beyond pilot projects to larger scale deployment, refine the technologies, answer potential environmental impact questions, and reduce higher project costs.

Research and development is also needed to maximize the full potential of hydropower pumped storage projects for use as transmission system tools to provide energy storage, grid reliability and other ancillary services. Pumped storage has the proven ability to provide the firming benefits needed to support the growth of other variable renewable technologies, such as wind and solar.

Federal research, development and deployment programs are critical to bringing these technologies and new projects to fruition and to build the human and technological capital needed to perform breakthrough research and transfer those innovations to the market. As we have testified in the past, NHA analyzed the 2007 EPRI report⁴ and has concluded that it provided a useful model and roadmap from which to guide activities under the DOE Waterpower R&D program. As such, this statement recommends, and incorporates by reference, the suite of initiatives identified in NHA's fiscal year 2010 statement to the House and Senate Appropriations Committees. These directives are intended to address the needs left unfunded by the previous DOE R&D program for hydropower and would expand the Department's efforts.

NHA also encourages Congress and the Department to pursue new horizon initiatives, like climate forecasting and modeling and additional energy/water nexus issues that may affect energy production in the coming years.

Congress has recognized the need for research, development and deployment of new advanced technologies, both for conventional hydropower and the ocean, tidal and instream hydrokinetic industries. NHA directs attention to title IX, section 931 in the Energy Policy Act of 2005 as well as the Energy Independence and Security Act of 2007.

THE IMPORTANCE OF THE DOE WATERPOWER PROGRAM

The Obama administration and the Congress are setting ambitious and aggressive goals for renewable energy development in the United States. Such aggressive goals require aggressive funding for research into renewable energy technology development and assistance in technology deployment.

The Department of Energy is the Government agency charged with meeting these goals and ensuring that cost-effective technologies are brought to market and add

⁴Assessment of Waterpower Potential and Development Needs, Number 1014762, EPRI, March 2007, http://my.epri.com/portal/server.pt?Abstract_id=000000000001014762.

to a diversified energy portfolio and NHA strongly supports their work particularly that of the Waterpower program.

At this critical time when we are relying on our innovative industries to deliver power from renewable resources in an efficient and economical way, we cannot allow initiatives to fall victim to funding setbacks. Throughout the years, the hydropower R&D program has been severely underfunded. This was felt most acutely during the middle of the last decade when the program was zeroed out—the only renewable resource to receive such treatment.

Looking forward, we see the mission of the Waterpower program as one that conducts R&D to improve the technical, societal, and environmental benefits of hydropower and hydrokinetic resources, and that also coordinates with other Federal agencies and industry, including both private and public entities involved with development, is also critical.

One example of the important areas of growth for the hydropower industry is increasing capacity at existing projects operated by the Army Corps of Engineers and the Bureau of Reclamation.

Project developers are reporting a need for better coordination, more resources and process improvements for working with the Federal system. Toward that end, DOE's ability to facilitate communication across the various Government agencies—from the Federal hydropower operators to the Federal Energy Regulatory Commission to the resource protection agencies—is crucial and funding should be directed to support its work in providing information and technical support to assist project development.

CONCLUSION

While funding levels for DOE's Waterpower research and development program have increased from zero funding in fiscal year 2006 to \$50 million in fiscal year 2010, more is required to fully support this important resource.

Under a comprehensive R&D program funded at \$100 million for fiscal year 2011, hydropower will be positioned to offer economic, environmental, and energy benefits simultaneously through comprehensive, well-designed initiatives. Funds are needed to support all technologies through important on-going and new work on resource assessments, advanced hydropower turbine designs, technology testing for new ocean, tidal, and instream hydrokinetic applications, environmental impact studies, climate and hydrology modeling, grid integration and the role of hydro in firming variable energy resources.

By accelerating the funding for the DOE Waterpower R&D program, the United States could soon realize the tremendous energy and environmental benefits of maximizing our existing hydropower projects and infrastructure as well as the suite of emerging wave, tidal, and hydrokinetic technologies.

PREPARED STATEMENT OF THE AMERICAN WIND ENERGY ASSOCIATION

INTRODUCTION

America's wind energy industry experienced a record year of growth in 2009. Industry deployed more than 10,000 megawatts (MW) nationwide, amounting to approximately 40 percent of the country's new electrical capacity and enough to power 2.4 million homes. Although wind systems are commercially deployable today, keeping America's domestic wind industry competitive with other generation sources requires increased research, development, and deployment (RD&D) funding to reduce costs and improve reliability.

Therefore, the American Wind Energy Association (AWEA) requests a funding level of \$186.5 million for fiscal year 2011, which is an increase of \$63.5 million above the President's Congressional budget request for the Department of Energy (DOE) Wind Energy Program. Of this amount, AWEA requests that \$16 million be designated for power system integration and transmission development for "variable generation" sources like wind and solar energy. The \$16 million could be appropriated to either the Wind Energy Program within the Office of Energy Efficiency and Renewable Energy (EERE) or to the Office of Electricity Delivery and Energy Reliability (OE).

DOE provides important technical support, guidance, information, and limited cost-shared funding for efforts to explore and develop wind energy resources. AWEA commends the DOE Wind Energy Program for successfully developing programs that are consistent with the wind industry's long-term needs. Regardless of whether OE or EERE receives grid integration and transmission development funds, it is crucial that both entities work together and with experts at DOE national labora-

tories—particularly the National Renewable Energy Laboratory—to help utilities resolve variability-related issues related to grid integration.

AWEA's funding request of \$63.5 million above the President's Congressional budget request of \$123 million is a significant increase, but was carefully determined via a months-long process involving more than 80 wind industry stakeholders through the AWEA Research and Development Committee. Expert stakeholders identified the funds needed to overcome constraints to meeting the DOE's scenario of wind energy providing 20 percent of our Nation's electricity by 2030 (20 percent Wind Energy by 2030, July 2008).¹

OVERVIEW

For years, the DOE Wind Energy Program has provided essential help to the wind industry by supporting technology advancements and identifying and addressing other hurdles to wind energy development. However, more work is necessary. Wind power is still constrained by difficulties in market acceptance and the need for improvements in cost, performance, and reliability. The DOE's 20 percent Wind Energy by 2030 report assumes that capital costs must be reduced by 10 percent and that turbine efficiency must increase by 15 percent to reach the goal of providing 20 percent of our Nation's electricity from wind by 2030. The DOE report clearly identifies a need for continued Federal investment in wind RD&D by stating, "In a functional sense, wind turbines now stand roughly where the U.S. automotive fleet stood in 1940."² As our Nation turns to wind power to meet more of its energy needs, it is crucial for DOE to increase funding to improve wind turbine reliability and reduce costs.

Achieving 20 percent of U.S. electric power from wind, with the critical help of RD&D, would:

- Create 500,000 jobs, generating over \$1 trillion in economic impact by 2030;
- Reduce natural gas demand by approximately 7 billion cubic feet/day—nearly one-half of the current consumption in the electric sector;
- Decrease natural gas prices by approximately 12 percent, saving consumers approximately \$128 billion;
- Avoid 825 million tons of carbon dioxide emissions in the electric sector in 2030, equivalent to 25 percent of expected electric sector emissions; and
- Reduce cumulative water consumption in the electric sector by 17 percent in 2030 (one-third of which would come from the arid West).

The DOE Wind Energy Program currently receives approximately \$84 million annually. In comparison, the RD&D budgets for many other traditional and emerging energy sources are much higher. For fiscal year 2010, non-defense nuclear RD&D energy programs will receive at least \$787 million, coal programs will receive \$404 million, and solar and biomass energy will receive \$247 million and \$220 million, respectively. A higher Federal funding level for wind energy RD&D will help ensure that wind energy remains competitive with other forms of energy.

IMPORTANCE OF DOE'S WIND ENERGY PROGRAM

The DOE Wind Energy Program has a strong history of success, and the cost-shared industry/Government research and development activities at DOE and NREL have played an important role in keeping the cost of wind energy competitive with other energy sources. AWEA strongly believes that a funding amount of \$186.5 million, provided by the subcommittee, would reflect the importance and impact of the Wind Program's work. OE and EERE should work closely with other national laboratories and organizations, such as NREL and the Utility Wind Integration Group (UWIG), to resolve grid integration challenges associated with wind energy development.

SPECIFIC WIND INDUSTRY PRIORITIES

A team of more than 80 members of AWEA and advisors from industry and academic institutions identified a \$63.5 million deficit in annual DOE funding necessary to support the RD&D and related programs needed to realize the vision of providing 20 percent of America's electricity from wind by 2030. We respectfully urge that Federal funding be provided for four specific areas as follows:

- Systems Integration and Transmission Expansion (\$16 million)
- Wind Turbine Technology and Reliability (\$38 million)
- Small Wind Turbines—100kW and Smaller (\$5.5 million)

¹U.S. Department of Energy, "20 percent Wind Energy by 2030" (July 2008), <http://www.20percentwind.org/20p.aspx?page=Report>.

²ibid.

—Community Wind (\$4 million)

Systems Integration and Transmission Expansion

The systems integration program area focuses on the power system operations issues of integrating variable, non-dispatchable power sources, like wind energy, into the power system. Wind generators in some regions, especially those with small control areas located outside Regional Transmission Organizations, are already being denied interconnection because operational limits for the integration of variable generation have been reached. Yet, numerous studies from the United States and Europe (with significant involvement from DOE-funded experts) have shown that even minor changes to operations can accommodate much greater amounts of wind. Areas of special focus include developing and analyzing additional sources of system flexibility, expanding and implementing power system operation tools, and supporting interconnection-wide integration studies and plans.

Transmission expansion is a key area of focus for meeting the 20 percent by 2030 wind energy goal. This area of funding should focus on issues related to expanding the transmission grid to increase access to areas with rich wind resources. Emphasis should also be placed on making the grid more robust, efficient, and reliable. This will help power to flow across regions, which will be critical to integrating large amounts of wind energy into the system.

Wind Turbine Technology and Reliability

Aiding improvements in wind system technology and reliability is a key component of the AWEA R&D Committee Action Plan. This area focuses on the development of turbine components to reduce capital costs, improve performance, and enhance equipment reliability to achieve the 20 percent vision by 2030. This includes developing lower-cost towers, more reliable gearboxes and generators, advanced blade sensors and controls, and streamlined manufacturing processes. AWEA also recognizes the need to reduce the cost of offshore wind energy technology in order for offshore sources to provide the estimated 54 gigawatts (GW) of the 300 GW needed to meet the 20 percent goal by 2030.

Small Wind Turbines (100 kilowatts and Smaller)

Greater Federal funding for small wind systems, those with capacities of 100 kilowatts (kW) or less, would help the small wind industry provide homes, farms, and small businesses with their own domestic, on-site wind generators. Increased funding for the small wind industry should be used to establish market deployment programs, streamline installation techniques, advance technological components, and improve tools to assess wind resources.

Community Wind

Community-scale wind projects, generally those whose economic benefits flow directly into the communities that host them, face greater commercialization challenges than do traditional wind power projects. Currently, very few Federal programs support community wind development. Many developers lack technical or financial resources, and the limited size of community wind projects often make them less attractive to experienced developers. Funding is needed to create and support a two-part Department of Energy Community Wind Initiative. The first part would create a technical assistance center to provide developers with wind resource data; technical, economic, and financial modeling of potential projects; permitting and brokerage assistance; outreach support, and other essential resources. The second part would fund multi-million dollar competitive DOE grants, over several years, to qualified community wind organizations to support permitting applications, interconnection and transmission agreements, environmental studies, view-shed acceptance, equipment procurement, and other essential aspects of development.

CONCLUSION

The President and Congress have called for a bolder commitment to the development of domestic renewable energy resources, particularly wind energy, to meet our Nation's growing energy demand. Continued investments in wind energy RD&D are delivering value for taxpayers by fostering the development of a domestic energy source that strengthens our national security, provides rural economic development, spurs new high-tech jobs, and protects the environment.

While the wind industry continues adding new generation capacity, challenges still exist. Continued support for DOE's Wind Energy Program is vital to helping wind become a more prominent energy source, which will benefit the economy and environment. To ensure that funding levels are commensurate with the President's call for more renewable energy, AWEA urges the subcommittee to provide \$186.5

million for the Wind Energy Program and OE in fiscal year 2011. Along with other key Federal policies, both new and sustained, greater RD&D funding through DOE will help transform the 20 percent wind vision into reality.

AWEA appreciates this opportunity to provide testimony on DOE's fiscal year 2011 Wind Energy Program budget before the House Appropriations Subcommittee on Energy and Water Development. We thank the subcommittee for its time and attention to our request.

PREPARED STATEMENT OF THE FEDERATION OF AMERICAN SOCIETIES FOR
EXPERIMENTAL BIOLOGY

On behalf of the Federation of American Societies for Experimental Biology (FASEB), I respectfully request an appropriation of \$5.24 billion for the Department of Energy, Office of Science in fiscal year 2011. This figure is in keeping with President Obama's vision for doubling the DOE SC budget. Further, it will enable the Office of Science to continue supporting essential research programs that enhance human health and quality of life, invigorate the economy, bring the Nation closer to energy independence, and drive scientific innovation.

FASEB is composed of 23 societies representing more than 90,000 members, making it the largest coalition of biomedical research associations in the United States. Our mission is to improve human health and welfare by promoting progress and education in biological and biomedical sciences.

The Office of Science is dedicated to investing in "the most exciting and daring research that human kind has ever conceived." The programs and facilities of the DOE SC enable important discoveries in computational sciences, environmental and biological sciences, and energy sciences. For example, DOE scientists are developing tools such as hollow glass microspheres, tiny glass capsules that are one-half the width of a human hair, which have applications ranging from targeted drug delivery to hydrogen storage for batteries. Additionally, work at the DOE national laboratories is increasing the capabilities of supercomputers, allowing for more efficient access to data and faster processing speeds. This and other research funded by the DOE SC drives cutting-edge science and technological innovations that ensure our Nation's safety, bolster our Nation's economy, and improve the day-to-day lives of the American people.

More than 25,000 researchers from various Government agencies, academic institutions, and private industry use the DOE SC's state-of-the-art laboratories and research facilities every year. The national laboratory system is the most advanced of its kind and permits the agency to support vital research in a variety of fields, as well as interdisciplinary research that extends the basic research of many other Federal agencies. In fact, much of the research funded by non-DOE science agencies would not be possible without the DOE's dedicated research infrastructure. At the Brookhaven National Laboratory the synchrotron particle accelerator, with its ability to produce intense light at a variety of wavelengths, is being used by medical scientists from the National Institutes of Health. In research funded by the National Institute of General Medical Sciences, X-rays from the synchrotron are being used to study the structure of proteins involved in Alzheimer's disease. The Office of Science also provides support to many graduate students and early-career postdoctoral researchers. Almost one-half of the DOE SC's research funding supports projects at over 300 academic institutions nationwide.

DISCOVERIES THAT IMPROVE HEALTH AND WELL-BEING

DOE-supported scientists are making remarkable contributions to human health.

—*Restoring Sight to Patients With Vision Loss.*—In conjunction with the National Science Foundation and the National Eye Institute, the DOE Office of Science helped to fund a team of ophthalmologists, engineers, and neuroscientists to create the first ever artificial retina. The groundwork for this development was laid by more than a century's worth of basic research into the structure and function of the eye. By drawing on the work of anatomists, biochemists, electrophysiologists and others, scientists were able to create a device delicate enough not to damage the eye yet complex enough to provide visual input to the human brain. The resulting artificial retina has been shown to restore some level of sight to those who have lost vision due to retinal disease. By 2011, the research team expects to start clinical testing on a version that will allow reading and facial recognition. These studies are bringing new hope to patients who have gone decades without sight.

—*Improving Bone Regeneration.*—Following a fracture, the process of bone proliferation and healing takes several weeks, even months. A research team fund-

ed by the DOE SC is currently developing safe, effective, and inexpensive implant materials to improve this process and shorten healing time. They have identified a growth factor known as lysophosphatidic acid (LPA) that promotes bone regeneration with no detectable toxicity. What's more, LPA can be manufactured at the fraction of the cost of the other bone healing stimulators that are currently available. The next step is for researchers to combine LPA with a hydrogel that, when injected around a damaged bone, will release the growth factor in a controlled manner. This research has the potential to significantly reduce recovery time for the 8 million Americans who suffer bone fractures every year.

—*Mitigating the Impact of Low Dose Radiation.*—The DOE Low Dose Radiation Research Program funds basic research to determine the effects of exposure to low doses of radiation. Researchers long ago established that ionizing radiation, which is present in a wide range of occupational settings, can lead to breast cancer by causing genetic mutations. Recent research DOE has funded, however, has revealed that exposure to ionizing radiation also acts as a carcinogen by affecting the cell proteins responsible for cell-to-cell communication and cellular structure. Thus exposure may result in breast or other types of cancer, even where genetic mutations are not detectable, and the damage can amplify by translating to subsequent generations of cells. Understanding the fundamental cell biology of radiation exposure paves the way for the development of treatments for and protections against low-dose radiation.

CLEANER AND MORE SECURE ENERGY FUTURE

Discoveries in fundamental energy sciences funded by DOE SC are already changing the way we use energy and paving the way for the next generation of environmentally-friendly, sustainable energy sources. Specifically, the Department's newly-formed Advanced Research Projects Agency-Energy (ARPA-E) is working on technologies to meet our most pressing energy needs.

—*Hydrogen Technologies.*—Hydrogen is one of the most abundant elements on the planet, making it an appealing clean energy alternative. However, almost all hydrogen is locked up in water and other compounds. Researchers at the Savannah River National Laboratory are working to advance the most promising method of extracting hydrogen from water—the Hybrid Sulfur Process. This two-step reaction is driven by electricity and heat, both of which can be generated by a nuclear reactor. This simple, efficient process is slated to be used in conjunction with next-generation nuclear plants and has the potential to produce enough hydrogen to power more than 1 million fuel cell cars.

—*Carbon Capture Technologies.*—Natural systems use an enzyme known as carbonic anhydrase (CA) to convert carbon dioxide to bicarbonate, which can then be transported out of tissue. A program funded through ARPA-E is working to apply this process to make the use of fossil fuels less environmentally damaging. The program will develop membrane technology for separating carbon dioxide from flue gas streams, using synthetic forms of CA. The synthetic analogue was created to be more robust than naturally-occurring CA, and thus able to function in harsh environments. This membrane technology developed by the DOE SC is one of many ways currently being explored to increase the efficiency of and reduce the cost involved in carbon capture.

RECOGNIZING THE IMPORTANCE OF DOE RESEARCH

In 2007, the passage of the America COMPETES Act demonstrated Congress' commitment to U.S. science and technology. Now, Congress has the opportunity to reassert this commitment by both reauthorizing America COMPETES and supporting the goal of doubling the budgets of DOE SC, NSF and NIST. Funding DOE SC based on the plan outlined in the President's budget will allow DOE to greatly enhance its groundbreaking research portfolio and permit it to confront current and future energy and health challenges. In keeping with this vision for doubling DOE SC budget, FASEB recommends an appropriation of \$5.24 billion for the Department of Energy, Office of Science in fiscal year 2011.

PREPARED STATEMENT OF THE NATIONAL CARBON CAPTURE CENTER

Mr. Chairman and members of the subcommittee: Southern Company operates the U.S. Department of Energy's (DOE's) National Carbon Capture Center (NCCC) (<http://nationalcarboncapturecenter.com>) at the Power Systems Development Facility (PSDF) in Wilsonville, AL for DOE's National Energy Technology Laboratory

(NETL) and several industrial participants.¹ The PSDF was conceived as the premier advanced coal power generation research and development (R&D) facility in the world and has fulfilled this expectation. NETL responded to the need for cost-effective carbon dioxide (CO₂) capture technologies by establishing the NCCC with a focus on conducting R&D to advance emerging CO₂ control technologies to commercial scale for effective integration into either combustion or Integrated Gasification Combined Cycle (IGCC) processes. The NCCC will accomplish this goal by providing a test-bed for Government, industrial, and university projects to conduct meaningful tests in an industrial setting. I would like to thank the Senate for its past support of the NCCC and request the subcommittee's continued support as the NCCC responds to the need for developing cost-effective CO₂ capture technology for coal-fueled power generation. This statement supports the administration's budget request for DOE coal R&D which includes about \$39.6 million for work at the NCCC. These funds are necessary to conduct the future test program developed in collaboration with DOE which includes wide-ranging support of the DOE Carbon Sequestration Technology Roadmap.

A key feature of the NCCC is its ability to test new carbon capture technologies for coal-based power generation systems at an integrated, semi-commercial scale. Integrated operation allows the effects of system interactions, typically missed in unintegrated pilot-scale testing, to be understood. The semi-commercial scale allows the maintenance, safety, and reliability issues of a technology to be investigated at a cost that is far lower than the cost of commercial-scale testing. Capable of operating at pilot to near-demonstration scales, the NCCC is large enough to produce data to support commercial plant designs, yet small enough to be cost-effective and adaptable to a variety of technology research needs.

In addition to semi-commercial scale testing, the NCCC will serve as a test bed for cost-effective technology screening by providing slipstreams of actual syngas from coal gasification and flue gas from coal combustion. Future test work at the NCCC will include the scale-up and continued development of several CO₂ capture technologies being developed either at DOE's NETL facility, at private R&D laboratories or at the NCCC. The DOE program for CO₂ capture in coal-fueled power plants is divided into three areas: post-combustion capture for conventional pulverized coal plants, pre-combustion capture for coal gasification power plants, and oxy-combustion processes which produce a more CO₂-rich flue gas than conventional combustion for easier CO₂ capture. The NCCC's CO₂ capture efforts would address all three areas.

Southern Company also supports the goals of the Clean Coal Technology Roadmaps developed by DOE, EPRI, and the Coal Utilization Research Council (CURC). These Roadmaps identify the technical, economic, and environmental performance that advanced clean coal technologies can achieve over the next 20 years. Over this time period coal-fired power generation efficiency can be increased to over 50 percent (compared to the current fleet average of ~32 percent) while producing de minimis emissions and developing cost-effective technologies for CO₂ management.

SUMMARY

The United States has historically been a leader in energy research. Adequate funding for fossil energy research and development programs, including environmental and climate change technologies will provide our country with secure and reliable energy from domestic resources while protecting our environment. Current DOE fossil energy research and development programs for coal, if adequately funded, will assure that a wide range of electric generation options are available for future needs. Congress faces difficult choices when examining near-term effects on the Federal budget of funding energy research. However, continued support for advanced coal-based energy research is essential to the long-term environmental and economic well being of the U.S. Prior DOE clean coal technology research has already provided the basis for \$100 billion in consumer benefits at a cost of less than \$4 billion. Funding the administration's budget request for DOE coal R&D and long-term support of the Clean Coal Technology Roadmap can lead to additional consumer benefits of between \$360 billion and \$1.38 trillion.² But, for benefits to be realized, the critically important R&D program in the Clean Coal Technology Roadmap must be conducted.

¹ Current NCCC participants include Southern Company, the Electric Power Research Institute (EPRI), American Electric Power, Luminant, NRG, Peabody Energy, Arch Coal, Inc., and Rio Tinto.

² EPRI Report No. 1006954, "Market-Based Valuation of Coal Generation and Coal R&D in the U.S. Electric Sector", May 2002.

One of the key national assets for achieving these benefits is the NCCC. The fiscal year 2011 funding for the NCCC needs to be about \$39.6 million to complete the construction and begin operation of new facilities to test technologies that are critical to the goals of the DOE Carbon Sequestration Technology Roadmap and to the success of the development of cost-effective climate change technologies that will enable the continued use of coal to supply the Nation's energy needs. The major accomplishments at the NCCC to date and the future test program planned by DOE and the NCCC's industrial participants are summarized below.

NCCC (FORMERLY THE PSDF) ACCOMPLISHMENTS

The NCCC test-bed has operated successfully for many years in support of U.S.-DOE's advanced coal program. Skilled staff from disciplines essential for a successful research program has gained experience by designing and operating the test equipment and by working with vendors to develop and improve their technologies. The NCCC has developed testing and technology transfer relationships with over 50 vendors to ensure that test results and improvements developed at the NCCC are incorporated into future plants. In some instances, testing has eliminated technologies from further consideration. Such screening is valuable in that it concentrates R&D effort on those technologies most likely to succeed and is an essential part of managing the U.S.-DOE's financial resources. Major subsystems tested and some highlights of the test program at the NCCC include:

Transport Reactor.—The Transport Reactor has been operated successfully on sub-bituminous, bituminous, and lignite coals as a pressurized combustor and as a gasifier in both oxygen- and air-blown modes and has exceeded its primary purpose of generating gases for downstream testing. Since modifications were made in 2006, subsequent testing with air-blown gasifier operations has indicated substantial improvements in syngas heating value and carbon conversion. This transport technology is projected to be the lowest capital cost coal-based power generation option, while providing the lowest cost of electricity and excellent environmental performance.

Advanced Particulate Control.—Two advanced particulate removal devices and 28 different filter elements types have been tested to clean the product gases, and material property testing is routinely conducted to assess their suitability under long-term operation. The material requirements have been shared with vendors to aid their filter development programs.

Filter Safe-Guard Device.—To enhance reliability and protect downstream components, "safe-guard" devices that reliably seal off failed filter elements have been successfully developed.

Coal Feed and Ash Removal Subsystems.—A key to successful pressurized gasifier operation is reliable operation of the coal feed system and ash removal systems. Developmental work on the pressurized coal feed systems has increased the understanding and optimization of their performance. Modifications developed at the NCCC and shared with equipment suppliers allow current coal feed equipment to perform in a commercially acceptable manner. An innovative, continuous process has also been designed and successfully tested that reduces capital and maintenance costs and improves the reliability of fine and coarse ash removal.

Syngas Cooler.—Syngas cooling is of considerable importance to the gasification industry. Devices to inhibit erosion, made from several different materials, were tested at the inlet of the gas cooler and one ceramic material has been shown to perform well in this application.

Advanced Syngas Cleanup.—A slipstream unit has provided flexibility in testing numerous syngas contaminant removal technologies to improve emissions and reduce costs in IGCC gas clean-up.

Sensors and Automation.—Significant progress with sensor development and process automation has been achieved. More than 20 instrumentation vendors have worked with the NCCC to develop and test their instruments under realistic conditions. Development of reliable and accurate sensors for the gasification process has concentrated on coal feed, Transport Gasifier, and filter systems. Automatic temperature control of the Transport Reactor has been successfully implemented.

Fuel Cell.—Two test campaigns were successfully completed on 0.5 kW solid oxide fuel cells manufactured by Delphi on syngas from the Transport Gasifier marking the first time that a solid oxide fuel cell (SOFC) has been operated on coal-derived syngas. Also, a NETL-erected SOFC multi-cell array test skid was successfully tested at NCCC directly on coal syngas.

CO₂ Capture.—Slipstream CO₂ capture testing has been completed on both simulated and actual syngas and results have been used to design larger test equipment.

NCCC FUTURE TEST PROGRAM

Developing technology options that will reduce CO₂ emissions is a primary goal for future work at NCCC. These technologies will be screened in close collaboration with NETL for selection for testing at the NCCC. This facility will serve as a productive test-bed for developing advanced technology and is capable of operating from bench- and pilot-scale to near demonstration scales allowing results to be scaled to commercial application. The NCCC will concentrate on developing cost-effective, commercially viable carbon capture technology for coal-fueled power plants through scale-up and continued development of several technologies (including for example those being developed either at DOE's facilities or by third party technology developers).

For both new and existing power plants, post-combustion capture technology must be made more efficient and cost-effective. In post-combustion capture, CO₂ is separated from the flue gas in a conventional coal-combustion power plant downstream of the pulverized coal boiler. Many post-combustion capture technologies need to be proven and integrated in an industrial power plant setting. Activities at the NCCC for post-combustion capture technology will include:

Pilot-Scale Test Modules.—Pilot-scale test modules of advanced post-combustion technologies will be designed, installed, and operated in an existing pulverized coal plant adjacent to the NCCC. The test modules' flexible design will allow the testing of a wide range of technologies on actual flue gas.

Technology Screening.—Available solvents developed by NETL, third party developers and the NCCC will be screened to assess readiness for testing at the site using improved contacting devices that are now under development.

Alternative Solvent Processes.—Alternative solvents with lower heats of regeneration and more compact, lower cost gas-liquid contacting equipment will be developed and tested.

Advanced Technology.—Compact membrane contactors and solid phase CO₂ sorbents, currently being investigated by DOE-NETL and private companies, will be assessed and installed. NCCC will provide such technologies a scaled-up testing platform as development progress warrants.

In pre-combustion capture, CO₂ is separated from the syngas in a coal gasification power plant upstream of combustion in the gas turbine. Research and development activities at NCCC for pre-combustion capture technology for application to gasification-based power generation include:

Advanced CO₂ Capture Systems.—New solvents and gas-liquid contacting devices will be assessed on air-blown and oxygen-blown syngas. New CO₂ separation technologies (sorbents or membranes) will be scaled-up and tested based on fundamental R&D progress by third party developers.

Water Gas Shift Enhancements.—New water gas shift reactor configurations and sizes are planned for testing at the NCCC. The operation of shift catalysts when exposed to syngas at the NCCC will be optimized and their technical and economic performance will be evaluated.

Advanced Syngas Cleanup.—New advanced syngas cleanup systems will be tested for reducing hydrogen sulfide, hydrochloric acid, ammonia, and mercury to near-zero levels.

Regarding oxy-combustion, system studies will be used to evaluate the commercial feasibility of operating the Transport Reactor in oxy-combustion mode. Based on study results, oxy-combustion test priority will be determined in collaboration with NETL.

In developing a cost-effective advanced coal power plant with CO₂ capture, all process blocks within the power plant must be optimized in addition to the capture block. Including CO₂ capture in an advanced coal power plant will increase the plant cost of electricity, so opportunities to reduce cost in every part of the process will be explored. With highest priority being given to low-cost CO₂ capture process development, projects that reduce overall capital and operating costs will also be included in the NCCC test plan to partially offset incremental cost increases from CO₂ capture addition. These cost reduction projects include technology development for syngas cleanup, particulate control, fuel cells, sensors and controls, materials, and feeders.

 PREPARED STATEMENT OF THE GULF RESTORATION NETWORK

I am writing on behalf of Gulf Restoration Network (GRN), a network of over 50 local, regional and national environmental, environmental justice, social justice, and public interest groups dedicated to uniting and empowering people to protect and restore the natural resources of the Gulf of Mexico region. The President's fiscal

year 2011 budget request for the Department of Energy proposes the cancellation of \$71 million in balances from prior year appropriations for an expansion of the Strategic Petroleum Reserve (SPR) at a site near Richton, Mississippi and assumes the use of these balances to partially fund the regular operations and management activities of the SPR.¹ The SPR program is part of the Office of Petroleum Reserves, which in turn is part of the Office of Fossil Energy in the Department of Energy. GRN commends this decision, and strongly urges the Senate Committee on Appropriations Subcommittee on Energy and Water Development to support this portion of the budget request. The cancellation of this funding for the proposed expansion of the SPR near Richton (hereinafter referred to as the Richton project) is a good fiscal, environmental and policy decision.

The proposed Richton project is a poor choice for a number of reasons: (1) it is estimated to cost at least \$16.8 billion,² a price tag that will likely only continue to grow; (2) the Richton site would require at least 330 miles of pipeline, increasing the likelihood of oil or brine spills into the environment;³ and (3) this project would be the first time that DOE has ever relied upon an inland freshwater source to mine the salt, an experimental proposal that worries many scientists familiar with the variable water flows of the Pascagoula River.

COSTS AND FUNDING

The Richton project should not be receiving large Federal investments because the Department of Energy has not completed the Federal mandated National Environmental Policy Act (NEPA) process and released its Record of Decision (ROD). As this Federal mandated process could ultimately lead to a decision to not move forward with the Richton project, any large-scale Federal funding should wait for the completion of the NEPA process. Also, a recent public statement indicates that "DOE believes funds for expansion could better be utilized to ensure ongoing operational readiness of the existing SPR."⁴ The Senate should respect the DOE's priorities and cancel past funding for this project.

Furthermore, the construction costs for the Richton project are estimated to be \$4 billion, and while estimates for the cost of filling the storage area depend on variations in oil prices, the initial fill of the site, based on projected 2010 crude prices, could range between \$12.8–\$13.6 billion.⁵ Using a conservative estimate, this represents an expense of \$16.8 billion or well over one-half of the DOE's proposed budget for this year. Although this expense would likely be spread out over multiple years, it still would involve a significant outlay of Federal funds for questionable benefits to taxpayers.

The Department of Energy considered several different sites as potential locations for an expansion of the SPR, and the Richton site was the most expensive project, and arguably the most environmentally harmful. Halting this destructive and costly project is a great way to begin shifting away from yesterday's problems and start addressing the daunting issues of tomorrow.

ENVIRONMENTAL AND ECONOMIC IMPACTS

Coastal Mississippi relies on its water resources and wetlands to maintain a thriving commercial and recreational fishing industry, promote tourism, and provide industry with their freshwater and transportation needs. Nationally significant water resources like the Pascagoula River, the Mississippi Sound, and the Gulf of Mexico are integral to the coastal economy and environment. Unfortunately, the plan for the Richton project could threaten these same resources. In fact, this plan to hollow out a series of underground salt caverns requires the withdrawal of 50 million gal-

¹"Appendix, President's Budget of the United States Government," (fiscal year 2011):430.

²Construction cost estimates from "Strategic Petroleum Reserve's New Richton Mississippi Site," United States Department of Energy: http://www.fossil.energy.gov/programs/reserves/spr/Richton_Fact_Sheet-Rev2_12-7-07.pdf. Petroleum price estimates based on "Short-Term Energy Outlook," United States Energy Information Administration (March 2010): <http://www.eia.doe.gov/emeu/steo/pub/mar10.pdf>.

³"Strategic Petroleum Reserve's New Richton Mississippi Site," United States Department of Energy: http://www.fossil.energy.gov/programs/reserves/spr/Richton_Fact_Sheet-Rev2_12-7-07.pdf.

⁴Kirgan, Harlan. "Salt Dome put on hold," Mississippi Press, March 24, 2010: http://blog.gulfive.com/mississippi-press-news/2010/03/richton_salt_dome_expansion_project_funds_redirected.html.

⁵Construction cost estimates from "Strategic Petroleum Reserve's New Richton Mississippi Site," United States Department of Energy: http://www.fossil.energy.gov/programs/reserves/spr/Richton_Fact_Sheet-Rev2_12-7-07.pdf. Petroleum price estimates based on predicated crude prices in 2011 "Short-Term Energy Outlook," United States Energy Information Administration (March 2010): <http://www.eia.doe.gov/emeu/steo/pub/mar10.pdf>.

lons of water per day from the Pascagoula River for 5–6 years.⁶ This water would be used to dissolve underground salt, and then the polluted and extremely salty by-product would be pumped off the coast of one of Mississippi's barrier islands. These actions could have significant impacts on the area's environment, including reduction in water flows in the Pascagoula River that could impact coastal estuaries, and a large, salty Dead Zone where the polluted water is released.

Furthermore, according to Department of Energy estimates, the 330 miles of pipelines necessary to complete this project will harm or destroy over 1,500 acres of wetlands and lead to at least 56 brine spills and 19 oil spills during the construction and initial fill of the site.⁷

CONCLUSION

The Richton project is bad policy for the Nation, and bad policy for the people of coastal Mississippi. For years, citizens in Mississippi and throughout the country have been working to stop this expensive and destructive project from moving forward. In fact, thousands of people have contacted Secretary of Energy Steven Chu, as well as their congressional representatives, over the last year to voice their opposition to this boondoggle. Congressman Gene Taylor, who represents Mississippi's 4th, the district that will be most impacted, and Senator Roger Wicker of Mississippi have also expressed significant reservations with the project as currently conceived. It is heartening to see that this proposed budget takes into account the public's input.

GRN strongly supports the cancellation of all previous funding for the Richton project in the President's fiscal year 2011 budget request for the Department of Energy and we urge the Senate Committee on Appropriations Subcommittee on Energy and Water Development and its members to support this portion of the proposed budget.

PREPARED STATEMENT OF THE US FUEL CELL COUNCIL AND THE NATIONAL HYDROGEN ASSOCIATION

On behalf of the members of the fuel cell and hydrogen industries, we thank you for consistently funding the Department of Energy's (DOE) hydrogen and fuel cell technology programs. Fuel cell and hydrogen technologies are a crucial part of the portfolio of advanced energy technologies that will help achieve the Nation's oil and greenhouse gas reduction goals. DOE and other supporting estimates show that domestic hydrogen fuel cells in light duty vehicles, for instance, could reduce oil imports by as much as 3.5 billion barrels per year within 40 years, reduce greenhouse gas emissions by 1.1 billion tons per year, and save consumers \$25 trillion over the succeeding 50 years. These are key public investments, and DOE's programs continue to advance the pace of technology and bring down costs.

As the subcommittee develops the fiscal year 2011 Energy and Water Appropriations recommendations, we urge you to provide \$390 million for the Fuel Cell and Hydrogen Technologies Programs managed by the Energy Efficiency and Renewable Energy (EERE), Science, Fossil Energy (FE) and Nuclear Energy (NE) organizations at the Department of Energy—a 23 percent increase vs. \$316 million appropriated for 2010. This amount would fully fund the critical research, development, demonstration and deployment (RDD&D) of these advanced technologies in order to make them competitive with the conventional ones they need to replace in cost, reliability and performance, and respond to our industry's main priority: deployment of early commercial systems and an advanced fuel cell vehicle demonstration. A detailed list of our program priorities and funding requirements are included in this testimony.

The fiscal year 2011 DOE request for EERE is \$137 million, down \$43 million (–24 percent) from the current 2010 Appropriation of \$180.1 million (including last year's funded earmarks). These cuts propose eliminating funding for market transformation for fuel cells in early markets; education activities; and Federal purchase initiatives, while curtailing all new vehicle deployments under the Technology Validation program. DOE also chose to reduce the Fossil Energy coal to hydrogen program by \$5.8 million. Similarly, at a time when funding for the Solid State Energy Conversion Alliance (SECA) program should be increased to support the megawatt-class demonstration effort, the DOE request is flat. This budget sends a damaging

⁶“Final Environmental Impact Statement for Site Selection for the Expansion of the Nation's Strategic Petroleum Reserve,” United States Department of Energy (2006).

⁷“Final Environmental Impact Statement for Site Selection for the Expansion of the Nation's Strategic Petroleum Reserve,” United States Department of Energy (2006).

message to our industry, our Nation and the world, threatens to weaken U.S. leadership and unbalances the Nation's energy portfolio.

More importantly, by making cuts to fuel cell and hydrogen technology programs, especially early market deployment, hydrogen infrastructure and fuel cell vehicles, and FE fuel cell research and development, DOE is sending negative signals to investors, manufacturers, auto makers, hydrogen gas suppliers, supply chain partners, potential customers, and other Federal agencies, local, State and foreign governments. The lead U.S. energy agency should fully embrace fuel cells and hydrogen infrastructure as an integral component of a comprehensive clean energy package to meet our national greenhouse gas reduction targets. Even worse, hydrogen and fuel cell industries could move offshore and the United States could lose as many as an estimated 675,000 potential net, new jobs.

A robust public-private partnership, exemplified by DOE Technology Validation programs focused on cost reduction and early deployment, will accelerate commercialization and the benefits that accrue with marketplace success.

STRENGTHENING FEDERAL HYDROGEN AND FUEL CELL PROGRAMS

Proposal.—Fund DOE Fuel Cell and Hydrogen programs at enhanced historical levels; revise to reflect program success and current priorities. Restore reductions proposed by the Obama administration for fiscal year 2011.

EERE Programs—\$220 Million

The hydrogen and fuel cell programs in the Department of Energy's Hydrogen, Fuel Cell and Infrastructure Technologies Program support the development of fuel cells, their fuels and supporting infrastructure. The program has made exceptional progress in a few short years, helping dramatically reduce the volume production cost of fuel cells and the consumer cost of hydrogen fuel, testing and evaluating more than 125 fuel cell vehicles in real world operation (U.S.-wide, over 300 vehicles have driven 3 million miles), and helping deploy more than a thousand fuel cell systems to Federal agencies and early private sector adopters to improve energy efficiency and security of supply with low or zero emissions.

Hydrogen and fuel cells have been a largely domestic suite of technologies, and, over the past two decades, the United States has continued to be the recognized leader in their development. Indifference to encouraging commercialization allows other nations, particularly Germany, South Korea, Japan, and China, to capture the lead in establishing and commercializing these technologies, reaping the economic benefits of associated job growth and export revenue. DOE analysis projects that transitioning to a hydrogen economy would yield a net increase in U.S. employment of 58,010 to 182,840 by 2020 and 184,560 to 677,070 by 2035.

Fuel cell technologies are a crucial part of the portfolio of advanced energy technologies that will achieve the Nation's energy policy and greenhouse gas reduction goals. DOE and other supporting estimates show that domestic hydrogen fuel cells in light duty vehicles, for instance, could reduce oil imports by as much as 3.5 billion barrels per year within 40 years, reduce greenhouse gas emissions by 1.1 billion tons per year, and save consumers \$25 trillion over the succeeding 50 years.

Robust public-private partnerships focused on cost reduction and early deployment will accelerate commercialization and the benefits that accrue with marketplace success.

Vehicle and Infrastructure Market Deployment: \$45 Million.—Support for initial sales, backed by a real-world vehicle and fuel testing and evaluation program, is essential to accelerating the transition to commercial market. DOE should extend the Technology Validation program for an additional year with technology insertion (\$15 million), and initiate a Vehicle and Infrastructure Market Deployment program. As their Technology Validation program is winding down, DOE now needs to evolve to support early market volumes of FCVs and related infrastructure consistent with a commercial transition. DOE Proposal: \$11.0 million

Market Transformation: \$45 Million.—The Market Transformation Program provides technical and financial support for purchase or lease of fuel cell systems entering the marketplace. The program creates U.S. jobs, improves security of air travel and communications, and enables a commercial transition in early markets. DOE supports the program but has deferred funding—and thus deferred job creation—to 2012. DOE should continue Market Transformation activities in all market sectors. Congress should expand the program to include State agencies and private sector customers and clarify that all fuel cell technologies are eligible. DOE Proposal: \$0.0

Fuel Cell R&D: \$67 Million.—DOE's robust program of cost reduction via research into materials, catalysts and components should continue. Distributed fuel cells sys-

tems provide energy efficiency and security benefits; DOE's program should continue. DOE Proposal: \$67.0 million

Hydrogen Fuels R&D: \$40 Million.—Hydrogen is one of a portfolio of fuels that together will achieve U.S. energy security while meeting greenhouse gas reduction goals. Improved hydrogen storage will reduce vehicle cost and improve capability, and will enable efficient use of hydrogen as a storage strategy for intermittent renewable resources, such as wind and solar power. Hydrogen from biomass uses a renewable domestic energy source and provides greater greenhouse gas reductions than biofuel combustion. DOE Proposal: \$40.0 million

Enabling Activities: \$18 Million.—These programs prepare local communities for fuel cell installations, fueling stations and fuel cell vehicles, and help DOE evaluate program options.

- Systems Analysis gives DOE tools to evaluate the program and calculate public benefits. (\$5 million)

- Safety, Codes and Standards development sets safety rules and product standardization guidelines, and trains local enforcement officials and first responders. (\$9 million)

- Education informs the public and potential customers about these technologies to break down awareness barriers. (\$2 million) DOE Proposal: \$14.0 million.

Manufacturing Research: \$10 Million.—Improvements in manufacturing are a critical component in cost reduction; DOE's program should continue and expand. DOE Proposal: \$5.0 million

- Paying for These Enhancements Within the EERE Program.*—Program Direction (+43 percent) and Program Support (+94 percent) enjoy large gains that go far beyond any associated subprogram level of effort increases—totaling +55 percent over fiscal year 2010, at \$287.3 million (vs +5 percent for EERE generally). These funds are generally rather loosely programmed, leaving generous margins for unnamed discretionary spending. They have not been as carefully explained as other program elements. Some of their expected functions might be more explicitly included within definite program areas—for example, technology advancement, commercialization and market development. We also believe that the next stage of the H-Prize should see modest funding from these allocations.

Fossil Energy Programs: \$118.8 Million

SECA Program: \$70 Million.—The Solid State Energy Conversion Alliance (SECA) is a cost shared public-private partnership developing high temperature Solid Oxide fuel cells for power generation. SECA's development targets to date have been met ahead of schedule, but continued support is needed to move to the megawatt scale demonstration phase. Commercial Solid Oxide fuel cells will make possible a 60 percent efficient coal fired power plant and kilowatt-scale solid oxide fuel cell modules for grid-independent distributed generation. Additionally, it will make it easier and cheaper to sequester CO₂ from coal. Fully funding the SECA program at \$70 million would assure continued progress and save jobs threatened by the administration's proposal. DOE Proposal: \$50.0 million

Fuels—Hydrogen from Coal Research: \$17.8 Million.—The Fuels activity helps reduce technological market barriers for the reliable, efficient and environmentally friendly conversion of coal to hydrogen. This specifically focuses on developing technologies that reduce costs and facilitate the production of ultra high-purity hydrogen from coal. Research for both stationary and transportation applications should continue. DOE Proposal: \$12.0 million

Hydrogen Turbines: \$31.0 Million.—Hydrogen turbine development efforts implement projects that will enable efficient, clean, and cost effective hydrogen fueled turbines for coal-based integrated gasification combined cycle power systems that capture and store CO₂. DOE program should continue. DOE Proposal: \$31.0 million

Nuclear Energy Programs: \$8.5 Million

Advanced Reactor Concepts: \$8.5 Million.—The Advanced Reactor Concepts program, an expanded version of the Generation IV research and development (R&D) program, sponsors research and development for further safety, technical, economical, and environmental advancements of innovative nuclear energy technologies. Specific guidance encouraging DOE to continue R&D on High Temperature Electrolysis and thermochemical cycles from the former Nuclear Hydrogen Initiative should be included. DOE Proposal: \$0.0

Science Programs: \$38 Million

The Office of Science includes funding for a variety of important materials activities with applications for hydrogen and fuel cell technologies, and which is spread between a number of Science program areas. DOE Proposal: \$38 million

Total fiscal year 2011 Proposed: \$390 million
 Total fiscal year 2011 DOE Request: \$268 million
 Total fiscal year 2010 appropriation: \$316 million

Further Background.—The national German industry agreements across manufacturers, energy suppliers and utilities have set the stage for wide public-private cooperation that could be readily adopted by the United States, and clearly illustrates the pace of how fuel cell vehicle and fueling infrastructure rollout can be solved. Similar efforts are underway in Japan and Korea, and will soon evolve in China. Moreover, the South Korean Government, through the adoption of targeted sliding subsidies, has jumped to the lead in the deployment of stationary CHP and residential fuel cells, which will decrease costs while drastically increasing fuel efficiency and reducing greenhouse gas emissions. A link to a government and industry webinar from February 17, 2010 is <http://www.hydrogenassociation.org/webinar/17feb10.asp>

A Senate briefing from March 5, 2010 also included a review from GM, Daimler and Linde, all participants in the German agreements. Presentations can be found at http://www.hydrogenassociation.org/policy/briefing_5mar10.asp.

PREPARED STATEMENT OF NUSCALE POWER, INC.

Dear Mr. Chairman and ranking member: On behalf of NuScale Power of Corvallis, Oregon we request that the subcommittee approve the President's budget request of \$38.8 million for small, modular reactors within the Office of Advanced Reactor Research Development and Demonstration. Our request is directed at both the research portion for advanced SMR's and especially the commercialization cost-share portion for up to two light water reactor SMR's designs.

It is also our request that language be included to clarify that Government-industry cost-sharing include but not be limited to NRC fees and other related work activities leading to the submission of a Design Certification Document to the NRC. This later clarification is consistent with other previous Government-industry cost shared programs. We would be happy to discuss ways to control the taxpayer's long-term financial commitment to such a program for SMR's.

The President has recognized the need for nuclear power as part of a comprehensive energy, environment and employment strategy for this country, including new financial incentives. The specific request for funding of small, modular reactors reflects the opportunity these new, innovative plant designs offer to strengthen our ability to achieve those goals. Small, modular reactor technologies build on a rich history of American innovation and world class nuclear design and operations. In particular, they will expand the potential market for new nuclear plants by reaching smaller markets, and they would do so while minimizing the magnitude of the financial challenge posed by larger nuclear plant designs.

The NuScale design was originally developed by Oregon State University, working with Idaho National Laboratory and Nexant-Bechtel, as part of a Department of Energy funded research program and validates the effectiveness of such programs in bringing new technologies to the market. In addition to developing the design, this program funded the development of a one-third scale "test facility" at Oregon State University, uniquely positioning the NuScale technology for licensing. NuScale Power is a privately funded company which was formed in 2007 for the sole purpose of commercializing this design under a Technology Transfer Agreement with Oregon State University.

Much has been accomplished already in this ambitious undertaking:

- Some 30 highly-skilled engineers and contractors now work for NuScale and as many more work for the company under contract with U.S. companies. We expect to triple that number in the next 12–18 months.
- Two separate panels of independent experts have evaluated the safety of the NuScale plant and their conclusions have been confirmed by a Level 1 Probabilistic Risk Assessment. These results were presented to the NRC in September 2009 and showed NuScale has achieved a safety margin that is exponentially greater than the already large margins of existing nuclear power plants.
- In 2008, NuScale organized a Customer Advisory Board with senior executives representing five major utilities in the United States. In February 2009, one of those companies, Energy Northwest, entered a Memorandum of Understanding with NuScale to explore the siting of a NuScale plant in their system.
- In a report prepared by the Electric Power Research Institute, NuScale was identified as the first small, modular reactor vendor to fully vet a Customer Requirements Document with its potential customers. In NRC parlance this

means NuScale is already working with customers to make its plant “market ready.”

All these efforts to date have been funded by private investments. Notwithstanding these encouraging developments, significant financial barriers remain before this technology can reach the market. The costs to prepare and submit an application for design certification and the subsequent costs for NRC review can be daunting and pose financial challenges that are increasingly difficult in the current economic climate. Customers too are concerned about the incremental costs of first of a kind investment. We are encouraged that the independent Nuclear Regulatory Commission staff—with the support of all three newly appointed Commissioners—is preparing for the submission of new SMR designs in the coming years in order to conduct the proper public safety evaluation, design and operating licensing certification. But if America is to maintain its place in the global market, and if the full potential of this new technology is to impact the domestic market in support of the President’s energy goals, the cost-sharing proposal in the current budget request would make a vital difference.

Yes, much has been accomplished. And yes, there is much work yet to be done. We ask for your support in these efforts.

PREPARED STATEMENT OF THE COALITION FOR THE COMMERCIAL APPLICATION OF
SUPERCONDUCTORS (CCAS)

CCAS respectfully requests that \$45 million be included as a line item for High Temperature Superconductivity R&D in the fiscal year 2011 budget for the Department of Energy, Office of Electricity Delivery and Energy Reliability.

The President’s proposed fiscal year 2011 budget for the DOE Office of Electricity Delivery and Energy Reliability (OEDER) contains a greatly reduced budget for High Temperature Superconductivity (HTS) of \$4,860,000 under the label Advanced Cables and Conductors. Further, the intent is to eliminate all spending on HTS R&D and demonstrations in fiscal year 2012.

Since its inception in 1988, the HTS program has enjoyed the strong, bipartisan support of Congress. Substantial progress toward commercialization has been achieved. Over this period, American taxpayers have made a major investment, alongside private capital, to ensure that the dramatic HTS materials discoveries made in the United States in the late 1980s are translated into beneficial products for United States consumers. We have also supported this investment to ensure a strong U.S. position in an emerging, very large, globally competitive field involving multiple applications and the concomitant high quality research and manufacturing jobs that will be realized.

HTS is a game changing development for energy generation, transmission and distribution for the 21st century and many thousands of high quality research and manufacturing jobs hang in the balance. While the United States still leads the world in HTS R&D and pre-commercial demonstrations, the leadership position in this critical technology has eroded substantially over the past 5 years as many foreign governments, particularly Korea, China, Japan, and Europe are increasing their support for HTS R&D as they realize the large number of jobs and the export value of the high tech products that potential leadership will bring.

HTS R&D has brought the technology from a laboratory materials discovery in Houston in 1987 to pre-commercial demonstration insertions in the U.S. electric power grid. Benefits are a 60–70 percent reduction in resistive power losses versus any other conductor; substantial reduction in right-of-way requirements; extremely high power transmission capability at reduced voltages; improved aesthetics and security from underground cable location; and a major reduction in carbon footprint from greatly improved power transmission and distribution efficiency. HTS R&D is also bringing major size and weight benefits to transformers and generators and creating unique opportunities to limit the spread of fault currents and attendant grid system blackouts thereby enabling a smarter transmission and distribution grid. These developmental products are at the prototype demonstration stage. The HTS R&D conducted in OEDER has also underpinned advances in superconductor wire development that are being used in other applications. Examples are a degaussing system for the Navy, now being tested at sea as a means to reduce or eliminate the magnetic signature of ships making them invisible to mines; and a full size HTS electric ship drive motor also under evaluation by the Navy at the Philadelphia shipyard. Both of these products effect a 50 percent reduction in both size and weight versus conventional approaches, gains typical of superconductor based products. In science, HTS is the only way in which to achieve higher magnetic field strength essential to advance today’s accelerator and collider technology. This

high magnetic field capability is equally applicable to advances in NMR and MRI for scientific and medical research. For more information: www.ccas-web.org.

The United States is in an international race to commercialize HTS wire and cable applications for the power grid. Now is not the time to cut HTS R&D funding when the technology is just a few years from large scale commercialization. The fledgling industry cannot afford to bear the total cost of development at this time, which makes U.S. Government support essential. The \$45 million annually over the next few years is needed to ensure an internationally competitive position for the United States in a technology, invented and largely developed here, that will be a major commercial jobs creator with attendant benefits for national security. Funding of demonstration projects within DOE has typically been allocated on a competitively bid, cost share basis.

CCAS is a U.S. non-profit organization and members are involved in the end-use, manufacture, development and research of superconductor based systems, products and related technologies. Members comprise large and small corporations, research institutions, National Laboratories and universities with operations in most States.

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Mr. Chairman and members of the subcommittee, I am Phil Giudice of Massachusetts and chair of the National Association of State Energy Officials (NASEO). NASEO is submitting this testimony in support of funding for a variety of U.S. Department of Energy programs. Specifically, we are testifying in support of no less than \$125 million for the State Energy Program (SEP), which is equal to the authorization. SEP is the most successful program operated by DOE in this area. This should be base program funding, with no competitive portion. SEP is focused on direct energy project development, where most of the resources are expended. SEP has set a standard for State-Federal cooperation and matching funds to achieve critical Federal and State energy goals. We also support \$300 million for the Weatherization Assistance Program (WAP). These programs are successful and have a strong record of delivering savings to low-income Americans, homeowners, businesses, and industry. We also support an increase in the budget for the Energy Information Administration (EIA) to \$145 million, including an increase for EIA's State Heating Oil and Propane Program, in order to cover the added costs of increasing the frequency of information collection, the addition of natural gas, and increasing the number of State participants. EIA's state-by-state data is very helpful. EIA funding is a critical piece of energy emergency preparedness and response, and there are significant new EIA responsibilities under the Energy Independence Security Act of 2007 ("EISA"). EIA conducted a study of their capabilities and resources under section 805 of EISA, and this study supports increased funding. NASEO continues to support funding for a variety of critical buildings programs, including Building Codes Training and Assistance, Energy Star, the commercial buildings initiative, residential energy efficiency and Building America, at a level of \$257 million in fiscal year 2011. NASEO also supports base funding (in addition to any congressionally-directed projects) for the Office of Electricity Delivery and Energy Reliability ("OE"), at least at the fiscal year 2011 request of \$186 million. Specific funding should be provided for the Division of Infrastructure Security and Energy Restoration of no less than \$18 million, which funds critical energy assurance activities. We also strongly support the R&D function and Operations and Analysis function within OE. The industries program should be funded at a \$150 million level to promote efficiency efforts and to maintain U.S. manufacturing jobs, especially in light of the loss of millions of these jobs in recent years. Additionally funding should be provided to support sections 451 and 453 of EISA, relating to combined heat and power and other waste heat recovery programs.

Formula SEP funding provides a basis for States to share best practices among themselves. These best practices (even without stimulus funds) allow States to get a great deal accomplished. These types of activities include revolving loans, utility-based programs, energy service performance contracts, etc.

In January 2003, Oak Ridge National Laboratory (ORNL) completed a study and concluded, "The impressive savings and emissions reductions numbers, ratios of savings to funding, and payback periods . . . indicate that the State Energy Program is operating effectively and is having a substantial positive impact on the Nation's energy situation." ORNL updated that study and found that \$1 in SEP funding yields: (1) \$7.22 in annual energy cost savings; (2) \$10.71 in leveraged funding from the States and private sector in 18 types of project areas; (3) annual energy savings of 47,593,409 million source BTUs; and (4) annual cost savings of \$333,623,619. The annual cost-effective emissions reductions associated with the energy savings are

equally significant: (1) Carbon—826,049 metric tons; (2) VOCs—135.8 metric tons; (3) NO_x—6,211 metric tons; (4) fine particulate matter (PM₁₀)—160 metric tons; (5) SO₂—8,491 metric tons; and (6) CO—1,000 metric tons. The energy cost savings is much higher today, in light of higher prices.

STIMULUS FUNDING IMPLEMENTATION

We want to thank the subcommittee for the tremendous support provided in the stimulus package for a variety of State and local funding initiatives, including \$3.1 billion for the State Energy Program, \$5 billion for the Weatherization Program, \$3.2 billion for the Energy Efficiency and Conservation Block Grant and \$300 million for the Energy Star appliance rebate program, etc.

This is a major task. We are working closely with the Department of Energy's, Energy Efficiency Renewable Energy Division (Cathy Zoi), the Office of Weatherization and Intergovernmental Programs (Claire Johnson), Matt Rogers in the DOE Secretary's office, NETL and Golden, the DOE General Counsel (Scott Harris), to implement these programs as quickly as possible. We have had regular calls with all the State energy officials to address implementation questions. We have also had a series of regional conference calls among the States, and we have seven regional coordinators helping to share "best practices" among the States. NASEO is cooperating with the other State and local organizations to share best practices and provide information to officials at all levels of government in order to more effectively coordinate this effort. We are convinced that these funds are helping to engineer major positive changes in the U.S. economy and as the economy rebounds this will help create "Green Jobs" and major energy improvements that will improve all sectors of the economy.

NASEO believes it is important to maintain base levels of appropriations for critical programs, such as SEP and Weatherization, in order to avoid a huge decrease in funding after a rapid stimulus increase.

With respect to ARRA spending for SEP, of the \$3.1 billion appropriated, over \$1 billion is now under contract and work is being implemented. Another \$1 billion has been committed to projects, including awards. We expect the remainder to move quickly. We and DOE are working through the barriers that slowed spending, including NEPA compliance, Davis-Bacon wage rates, Buy-American clauses, historic preservation, lead paint requirements and general procurement issues. It is important to stress that the key figures are the "commitment" and "contracted" amounts, because that is when people get hired and work commences. States generally do not pay until projects are actually completed and milestones are met. We do not pay-up front in most cases. In economics jargon, the Federal spending figure is actually a lagging indicator.

Industrial Energy Program.—A funding increase to a level of \$150 million for the Industrial Technologies Program (ITP) is warranted. This is a public-private partnership in which industry and the States work with DOE to jointly fund cutting-edge research in the energy area. The results have been reduced energy consumption, reduced environmental impacts and increased competitive advantage of manufacturers (which is more than one-third of U.S. energy use). The States play a major role working with industry and DOE in the program to ensure economic development in our States and to try to ensure that domestic jobs are preserved. State energy offices are working effectively with DOE on the "Save Energy Now" campaign. Funding for distributed generation and specific funding for sections 451 (including the Clean Energy Applications Centers) and 453 of EISA is critical and should be included above the \$150 million proposal.

Examples of Successful State Energy Program Activities.—The States have implemented thousands of projects. We have previously supplied to subcommittee staff examples of programs implemented under ARRA. Here are a few representative examples.

Alabama.—The State has dedicated \$25 million for an energy revolving loan fund for business and industry, and has dedicated \$5 million for energy efficient school retrofit grants.

California.—The State has committed to a comprehensive residential building retrofit program, retrofits for municipal and commercial buildings, a finance program for municipalities, State building retrofits through revolving loans (\$25 million), clean energy business financing, low-interest loans for local governments and "Green Jobs" workforce training (\$20 million), etc.

Hawaii.—This State is focused on energy efficiency and renewable energy projects intending to supplement existing efforts. For example, promotion of Energy Star upgrades for hotels, technical assistance to develop green buildings and other energy efficient buildings, have been two major projects. Funds have supplemented the

public benefits program, the county energy efficiency efforts and alternative fuel efforts.

Iowa.—This State has committed substantial funding to municipal energy efficiency projects and green jobs initiatives. They have also instituted an energy loan program. Funding has supplemented programs and projects conducted under the \$100 million Iowa Power Fund.

Kentucky.—\$14 million has been dedicated to the Green Bank of Kentucky for energy efficiency financing for public buildings by utilizing revolving loans. In addition, funds were provided for an advanced energy efficient battery initiative, commercial office building energy efficiency retrofits, industrial facility energy efficiency retrofits, Home Performance with Energy Star, utility smart grid activities and \$10 million for energy efficiency in K–12 schools.

Louisiana.—\$25.7 million has been committed to energy efficiency retrofits in higher education buildings, \$15.7 million is dedicated to retrofits of commercial buildings and energy efficiency for new and existing homes, and \$10 million has been committed to renewable energy development.

Mississippi.—\$17 million was dedicated for energy efficient public buildings, including retrofits, performance contracting and building energy codes and \$10 million was allocated for renewable energy projects, smart meters on public facilities and support for community college workforce training. An additional \$10 million was slated for businesses to implement energy efficiency or renewable energy upgrades.

Missouri.—This State's extensive residential energy efficiency program is providing loans, grants and rebates to homeowners to install energy efficiency measures. Funding has also been provided to train residential energy auditors. They have also initiated an industrial and manufacturing energy efficiency initiative, as well as an agricultural energy program.

Montana.—\$22.3 million has been allocated to State universities, community colleges and other State facilities for energy efficiency projects; 87 projects are underway. A revolving loan program has been set up for homeowners and small businesses to install alternative energy systems. Additional funds have been dedicated to renewable energy demonstration projects.

New Jersey.—\$7 million has been committed to fund solar installations on multi-family buildings, \$4 million for residential energy efficiency financing, \$4 million for multi-family energy efficiency loans, \$17 million for municipal energy efficiency incentives, \$6 million for State building energy efficiency and an additional \$15 million for grants and loans for energy efficiency and renewable energy applications.

North Dakota.—The State instituted a high efficiency furnace rebate program to help victims of the 2009 spring floods. The State also instituted a statewide energy efficiency and renewable energy rebate program in partnership with rural electric cooperatives, municipally-owned utilities and the investor-owned utilities. Projects have included blender pumps for retailers (e.g. West Fargo, Minot, Grand Forks, Edgeley, Wyndmere and Bowman) and flare gas electricity generation (Williams County).

Ohio.—\$42.6 million has been allocated for a variety of renewable energy activities, including manufacturing, waste-to-energy and biofuels, \$8 million has been dedicated to energy efficiency and geothermal for new and existing buildings, \$30 million is capitalizing a revolving loan program for all sectors, and \$15 million is committed to energy efficiency for industry.

Rhode Island.—Funds have been provided for a green building initiative in State facilities, a commercial/industrial energy efficiency initiative, building code upgrades and energy efficient transportation, \$8.4 million has been allocated for renewable energy loans, \$2.3 million has been allocated for a residential energy efficiency initiative with approximately \$7.5 million in leveraged funds projected. Larger (utility scale) renewable projects received \$5 million.

South Dakota.—\$20.5 million has been dedicated to a State revolving loan for public buildings, with \$3 million for a limited number of grants. Activities include energy efficiency retrofits, LEED ratings, on site generation, etc.

Tennessee.—This State has committed its resources to three major solar initiatives including a solar and economic development program, creating a Tennessee Solar Institute at ORNL and creating a large solar farm.

Texas.—\$137.8 million has been allocated for public sector building energy efficiency, including revolving loans for schools, hospitals, municipalities, public colleges, etc. and \$52 million has been allocated for a competitive renewable energy grant program. Energy sector training projects have been granted to junior colleges and technical institutes. Transportation efficiency programs have also been funded.

Utah.—Funds have been allocated for residential and commercial energy training, advanced energy efficiency for buildings, whole home audit programs, builder rebates for high performance home building, direct installation for insulation, energy

efficiency in State buildings, grants for energy efficiency in public schools, revolving loans for public schools and competitive grants for highly innovative energy efficiency projects. Renewable energy projects for State-owned buildings and public schools have also been funded. The \$10 million in loans for State agencies is projected to leverage \$60 million in other funds.

Washington.—Approximately \$20 million was allocated for a energy efficiency and renewable energy loan and grant program. Over 10 times the amount of available funds was requested by potential recipients. Additional funding of \$5 million was provided for energy efficiency credit enhancements (supporting \$50 million in total project expenditures). Funding was also allocated for energy efficiency in agricultural uses and community wide residential and commercial energy efficiency pilots received \$14 million in grants.

West Virginia.—Almost \$13 million has been dedicated to energy efficiency projects in higher education buildings and K–12 schools. State buildings also received funds for energy efficiency projects. A green collar jobs training program was also initiated.

PREPARED STATEMENT OF ASME

Mr. Chairman, ranking member and members of the subcommittee: The ASME Energy Committee is pleased to provide this testimony on the fiscal year 2011 budget request for research and development (R&D) programs in the Department of Energy (DOE).

INTRODUCTION TO ASME AND THE ASME ENERGY COMMITTEE

The 127,000-member ASME is a nonprofit, worldwide educational and technical Society. It conducts one of the world's largest technical publishing operations, holds more than 30 technical conferences and 200 professional development courses each year, and sets some 600 industrial and manufacturing standards, some of which have become de facto global technical standards. The Energy Committee of ASME's Technical Communities comprises 40 members from 17 Divisions of ASME, representing approximately 40,000 of ASME's members.

ASME has long advocated a balanced mix of energy supplies to meet the Nation's energy needs, including advanced clean coal, petroleum, nuclear, natural gas, waste to energy, biomass, solar, wind and hydroelectric power. ASME also supports energy efficient building and transportation technologies, as well as transmission and distribution infrastructure sufficient to satisfy demand under reasonably foreseeable contingencies. Only such a portfolio will allow the United States to maintain its quality of life while addressing future environmental and security challenges. Sustained growth in the energy systems on which the United States depends will also require stability in licensing and permitting processes not only for power generating stations but also for transmission and transportation systems.

A forward-looking energy policy will require enhanced and sustained levels of funding for R&D, as well as Government policies that encourage deployment and commercialization. While the Energy Committee supports much of the fiscal year 2011 budget request, especially the increases in funding for fundamental scientific research. The Energy Committee also wishes to emphasize that a balanced approach to our energy needs is critical and that we remain concerned about the decrease in funding for fossil energy, which is essential to meeting our national energy needs now and in the future.

CRITICAL ISSUES

The Energy Committee would like to point out some critical energy issues:

- Additional investment guarantees for construction of new electrical capacity, especially nuclear facilities, must be enacted in future legislation. These guarantees will enable lower financing costs for a variety of energy technologies and fuel sources that will be available for the American public. Extending these programs further into the future will allow a reasoned rate of increase in construction and application of these technologies for electric generation. It is critical that non-biased, critical analysis of known potential energy/environmental/technical benefits and impacts drive allocation. These must consider capacity value (reliable contribution to load trends) of resources as well as capacity factor, and also losses from proximity or remoteness from load. These additions translate to much more efficient use of subsidy dollars.
- There is a critical shortage of trained personnel in the workforce at all levels. This includes scientists and engineers who will conduct research, those who will

operate and maintain the systems, as well as people in building trades that will be essential for the construction of our energy systems and in industry that will manufacture the components. “Regaining our ENERGY Science and Engineering Edge” or “RE-ENERGYSE,” a program being conducted jointly by the DOE EERE and the National Science Foundation (NSF) and geared to young scientists and engineers, is a positive step toward addressing this chronic issue. We would like to see this program honored in fiscal year 2011.

FOSSIL ENERGY

The fiscal year 2010 budget request of \$760 million for fossil energy represents a \$190 million decrease over the fiscal year 2010 appropriation; a 20 percent decrease over the fiscal year 2010 budget request. Fossil Energy Research and Development would be reduced by \$85 million to \$586 million; however, much of this is covered by stimulus funding in the near term. Funding for Natural Gas Technologies and for Unconventional Fossil Energy Technologies would be eliminated. The budget for the Strategic Petroleum Reserve would be suspended. The Energy Committee encourages funding for coal research programs and urges a restoration to at least the levels appropriated for fiscal year 2010 in future years when the stimulus funding has been expended. The effective use of coal in today's environment demands an increase in efficiency and a decrease in release of environmentally harmful waste streams. Coal remains a critical resource for our Nation and its economy; however, and we must continue to invest in technological advancements that will reduce emissions for this energy. The use of more efficient processes for coal combustion, such as advanced integrated gasification combined cycle (IGCC) technology, combined with carbon sequestration will allow the United States to utilize its coal resources in a more environmentally sound and cost effective manner. We encourage strong and consistent funding for these programs now and in future years.

ADVANCED RESEARCH PROJECTS AGENCY-ENERGY (ARPA-E)

The Energy Committee supports the \$300 million budget request for the Advanced Research Projects Agency-Energy (ARPA-E). This is a worthwhile endeavor for the DOE as we seek to accomplish technological breakthroughs in energy technology.

NUCLEAR ENERGY

The Energy Committee is pleased to see an overall increase in the DOE Nuclear Energy budget to \$912 million in fiscal year 2011, a \$42 million increase over the fiscal year 2010 appropriated amount. However, the Energy Committee is discouraged at the discontinuation of the Generation IV Nuclear Energy Systems program. The Energy Committee is curious to see how the proposed Reactor Concepts RD&D program distinguishes itself from the traditional R&D program under the Office of Nuclear Energy. Nuclear energy, as a low-carbon, non-greenhouse gas-emitting resource, is a critical component of a diverse U.S. power generation mix and should play a larger role in the Nation's base power supply. Sustained increases in nuclear power research are justified by the imperative of reliable, low cost, low emissions electricity.

Before its cessation in the fiscal year 2009 Omnibus Appropriations bill, the Global Nuclear Energy Partnership (GNEP) program was a vital means to enhancing the future of safe, reliable, nuclear power through the establishment of international centers for nuclear fuel cycle services for nations both large and small. Although no funding is provided for GNEP, the Advanced Fuel Cycle Initiative, now called Fuel Cycle R&D, would receive \$201 million in funding in fiscal year 2011, a \$65 million increase. The ASME Energy Committee remains hopeful that the administration, with the aid of Congress, will eventually reconsider the discontinuation of GNEP, which continues to exist as an international collaborative effort, but minus U.S. participation.

ENERGY EFFICIENCY AND RENEWABLE ENERGY

The Office of Energy Efficiency and Renewable Energy (EERE) manages America's investment in research, development and deployment of DOE's diverse energy efficiency and renewable energy applied science portfolio. The fiscal year 2011 request of \$2.35 billion, \$112 million above the fiscal year 2010 appropriated amount, provides a broad and balanced set of approaches to address the urgent energy and environmental challenges currently facing our Nation. Most of the key EERE programs, including Biomass, Solar, Wind, Geothermal, Building Technologies, Vehicle

Technologies, and Industrial technologies, have received sizable increases in funding to support the growth of renewable energy. The Energy Committee encourages Congress to include waste-to-energy as an important component of the Country's Renewable Energy portfolio to provide it with the same benefits as energy from biomass.

The RE-ENERGYSE program is slated to receive \$50 million as part of the fiscal year 2011 request. Facing a deficit of engineers in the United States, the Energy Committee believes that this could be an effective step toward replenishing our Nation's workforce by encouraging young people to pursue science and engineering. Therefore, the Energy Committee strongly supports full funding for the RE-ENERGYSE program, something that did not receive funding for the fiscal year 2010 appropriation.

The Energy Committee believes that the development of transportation fuel systems that are not petroleum based is a critical part of our future national energy policy. The fiscal year 2011 budget for biomass and bio-refinery systems R&D is slated to receive no increase at \$220 million for fiscal year 2011, identical to the fiscal year 2010 appropriated amount. It should be noted that this program did receive \$777 million as part of the American Recovery and Reinvestment Act (Public Law 111-5). Therefore, the Energy Committee supports the current appropriation and encourages Congress to ensure that these research programs continue to receive adequate funding. We are also pleased to see the \$325 million increase in the effort related to vehicle technologies emphasizing plug-in hybrid electric vehicles.

The integration of all cost effective electric generating technologies into the operation of the electricity distribution system is critical to economic operation of the national electric grid. The Energy Committee believes that R&D related to the integration of the electric grid and its control as a truly national system is imperative for the growth of effective and economic energy generation technologies and we encourage full funding for such research.

SCIENCE AND ADVANCED ENERGY RESEARCH PROGRAMS

The Energy Committee is pleased by the increased request for the Office of Science (OS) which restores the funding trajectory mandated in the America Competes Act of 2007 (Public Law 109-69). The fiscal year 2011 budget proposal of \$5.12 billion is an increase of \$217 million over the fiscal year 2010 appropriation. OS programs in high energy physics, fusion energy sciences, biological and environmental research, basic energy sciences, and advanced scientific computing, serve, in some small way, every student in the country. These funds support not only research at the DOE Laboratories, but also the work at a large number of universities and colleges. We believe that basic energy research will also improve U.S. energy security over the long term, through its support for R&D on cellulosic ethanol and other next-generation biofuels, advanced battery and energy storage systems, and fusion. The Energy Committee strongly supports the budget request for the Office of Science, as well as the proposed doubling track for the office by fiscal year 2017.

OTHER DOE PROGRAMS

DOE is also very active in areas outside of R&D. The environmental remediation program that funds the decommissioning and decontamination of old DOE facilities is one such research area. The Energy Committee questions the advisability of flat funding for the Environmental Management program. The Yucca Mountain Waste Repository is a critical part of the environmental cleanup activity. Termination of this project will only extend and increase the final cost of the environmental management program. The energy committee does not support this backward step. The coming resurgence in the commercial nuclear arena is likely to deplete the trained professionals available for this program as engineers choose to move to the more stable commercial environment. Congress should appropriate the funds to ensure that this work is accomplished in an expeditious manner.

CONCLUSION

Members of the ASME Energy Committee consider the issues related to energy to be one of the most important issues facing our Nation. The need for a strong and coherent energy policy is apparent. We applaud the Administration and Congress for their understanding of the important role that scientific and engineering breakthroughs will play in meeting our energy challenges. In order to promote such innovation, strong support for energy research will be necessary across a broad range of technology options. DOE research can play a critical role in allowing the United States to use our current resources more effectively and to create more advanced energy technologies.

Thank you for the opportunity to offer testimony regarding both the R&D and other parts of the proposed budget for the DOE. The ASME Energy Committee is pleased to respond to requests for additional information or perspectives on other aspects of our Nation's energy programs.

PREPARED STATEMENT OF THE GULF COAST RESEARCH LABORATORY

I am writing to you as a marine biologist with over 40 years of experience in fisheries science. I would like to share my concerns with you about the proposed plans to construct an expansion site for the Strategic Petroleum Reserve (SPR) at Richton in Perry County, Mississippi.

The Richton Site differs from DOE's four existing Strategic Petroleum Reserve (SPR) sites located in other States and these differences were not adequately addressed in the original Environmental Impact statement. The Richton project is the first SPR to place the brine diffuser in a marine environment near a barrier island pass and the use of diffusion models designed for other locations to explain circulation processes in Mississippi waters is totally inappropriate and not based on "sound science". The physiography of the Mississippi Bight and circulation patterns within this region are unique. There are serious concerns that the Pascagoula River Basin will suffer as a result of the project's withdrawal of 50 million gallons of water per day for a period of 5 to 6 years concurrent with the daily diffusion of 42 million gallons of toxic salt brine (236 ppt) waste at a discharge site south of Horn Island Pass. This site is directly in line with the Pascagoula Ship Channel and may serve as a conduit for movement of brine northward. Based on the best available oceanographic models for the area, there is the probability that the brine will not diffuse as it does in other areas, but will actually enter the Mississippi Sound with a component of the discharge moving westward along the south side of the barrier islands toward the Chandeleur Islands in Louisiana. This would create a "brine pool" within the Sound and would establish a "brine barrier" across the island passes. Mississippi's barrier island passes are key corridors for the transport of larvae and postlarvae of economically important fish and shellfish to and from the Mississippi Sound and the effect of a "brine barrier" on these fragile life stages may be catastrophic.

The Pascagoula River is the largest unaltered, undammed river system in the United States and is considered a "Natural Treasure". There is concern that salt water intrusion resulting from the vast discharge of brine south of Horn Island Pass coupled with decreased freshwater flow may alter coastal ecosystems and impact rare, threatened, and endangered species (14 listed by the Mississippi Department of Marine Resources). Mississippi is dependent on its water resources and wetlands to maintain commercial and recreational fisheries and protection of these natural resources is a priority for the people of Mississippi.

PREPARED STATEMENT OF ENERGY NORTHWEST

Energy Northwest is writing to express its support for the President's fiscal year 2011 budget request of \$38.9 million for the Department of Energy's small, modular nuclear reactor (SMR) program. This funding will help avoid delays in the Federal licensing by the Nuclear Regulatory Commission for such projects.

The President's budget request would support public/private partnerships to advance mature SMR designs, and research, development and demonstration of innovative SMR technologies and concepts.

Energy Northwest is a joint operating agency headquartered in Richland, Washington and comprised of 28 publicly owned utilities from across Washington State. The agency owns and operates four electric generating plants: Columbia Generating Station (nuclear power plant), Packwood Lake Hydroelectric Project, Nine Canyon Wind Project and White Bluffs Solar Station. As part of Energy Northwest's evaluation of options for meeting future wholesale power supply needs of its members, the concept of building a small reactor that could be grouped with other modules to meet future load group is currently being studied.

At a time when the United States is charting an energy course to increase national energy security and promote greater development of low- or no-carbon emission resources, SMRs hold great promise. Potential benefits of SMRs include providing utilities greater flexibility in terms of capital investment, financing, siting and sizing.

Thank you for the opportunity to submit these views.

PREPARED STATEMENT OF THE AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association (APPA) is the national service organization representing the interests of over 2,000 municipal and other State and locally owned utilities throughout the United States (all but Hawaii). Collectively, public power utilities deliver electricity to 1 of every 7 electric consumers (approximately 45 million people). We appreciate the opportunity to submit this statement outlining our fiscal year 2011 funding priorities within the Energy and Water Development Subcommittee's jurisdiction.

Renewable Energy Production Incentive (REPI).—APPA requests \$5 million for the Renewable Energy Production Incentive (REPI). The Department of Energy's REPI program was created in 1992's Energy Policy Act (EPAct) as a counterpart to the renewable energy production tax credits made available to for-profit utilities, and was reauthorized through 2016 in the Energy Policy Act of 2005 (EPAct05). EPAct05 authorizes DOE to make direct payments to not-for-profit public power systems and rural electric cooperatives at the rate of 1.5 cents per kWh (1.9 cents when adjusted for inflation) from electricity generated from a variety of renewable projects. While the program had been zeroed out in recent years by the Bush and Obama administrations, Congress has consistently restored funding at \$5 million until last year. In fiscal year 2010, the REPI program received no funding. As Congress works toward adopting a Federal renewable portfolio standard and a climate change mitigation program, REPI becomes increasingly more important to not-for-profit utilities. Several non-profit utilities that have been relying on the program to help fund renewable programs, have been abandoned by the lack of funding. While the demand for the program is truly \$25 million, \$5 million would restore funding.

POWER MARKETING ADMINISTRATIONS (PMA'S)

Power Marketing Administration Proposals.—In past years, various measures have been proposed for all four PMAs that would have had the effect of raising the rates for PMA customers. We appreciate that the fiscal year 2011 request does not include these types of proposals.

Purchase Power and Wheeling.—We urge the subcommittee to authorize appropriate levels for use of receipts so that the Western Area Power Administration (WAPA), the Southeastern Power Administration (SEPA) and the Southwestern Power Administration (SWPA) can continue to purchase and wheel electric power to their municipal and rural electric cooperative customers. Although appropriations are no longer needed to initiate the purchase power and wheeling (PP&W) process, the subcommittee continues to establish ceilings on the use of receipts for this important function. The PP&W arrangement is effective, has no impact on the Federal budget, and is supported by the PMA customers who pay the costs. We support an increase over the funding levels of the administration's budget for fiscal year 2011, which are as follows: \$553.6 million for Western Area Power Administration (WAPA); \$88.6 million for Southeastern Power Administration (SEPA); and \$49 million for Southwestern Power Administration (SWPA).

Storage for High-level Nuclear Waste.—APPA is disappointed in the administration's lack of support for the Department of Energy used nuclear fuel management program. However, we support efforts by the administration to study alternatives to Yucca Mountain and request a funding level of \$340 million for the Office of Radioactive Waste Management at the Department of Energy.

Nuclear Loan Guarantees.—APPA is pleased with the administration's request of \$54.5 billion for DOE Loan Guarantees for Innovative Energy Technology and encourages the subcommittee to maintain this level of funding.

Department of Energy Waterpower Program.—APPA requests \$100 million for fiscal year 2011 for the DOE's Waterpower Program. At a time when utilities around our country must focus on finding carbon-free sources of energy, the importance of hydropower research and development is more important than ever before. Not only is hydropower a renewable resource, but it can be used as baseload generation to back up more intermittent renewables such as wind and solar power.

Energy Conservation.—APPA appreciates the funding increases for energy efficiency programs provided in the President's budget. The budget funding levels for fiscal year 2011 are as follows: Building Technologies—\$231 million; Industrial Technologies—\$100 million; Federal Energy Management Program—\$42 million; and Vehicle Technologies—\$325 million. We urge the subcommittee to maintain these funding levels. We however encourage the subcommittee to increase funding for the EPA ENERGY STAR program over the requested amount of \$55.4 million.

Weatherization and Intergovernmental Activities.—We are pleased that the administration has requested \$385 million for the Weatherization program in fiscal year

2011, a 30 percent increase from fiscal year 2010 and we encourage the subcommittee to maintain that level of funding.

Clean Coal Power Initiative (CCPI) and FutureGen.—APPA is disappointed that the budget did not include funding for large scale commercial applications of carbon capture and sequestration technology. The American Recovery and Reinvestment Act (ARRA) included \$800 million for the CCPI Round 3 program and we encourage the subcommittee to include funding for a CCPI round 4 program. Funding for FutureGen was made available in the ARRA. APPA strongly believes as concerns grow over climate change and the effects of man-made emissions from combustion of fossil fuels, the FutureGen project will be critical in nearing us to the goal of the world's first near-zero-emissions coal fired plant. We urge the subcommittee and the Congress to work with the administration on finding an appropriate role and funding level for the FutureGen project.

Fuel Cells.—APPA was disappointed with the funding request of \$50 million for fiscal year 2011 for fuel cell related research and development. This is a 7 percent decrease from fiscal year 2010 levels. We urge the subcommittee to allocate additional funding for this program for fiscal year 2011.

Fuels and Power Systems.—We recommend these funding levels for the following programs: Innovations for Existing Plants—increase from \$65 million to \$84 million; Advanced Integrated Gasification Combined Cycle—increase from \$55 million to \$80 million; Turbines—increase from \$31 million to \$45 million; Carbon Sequestration—increased from \$143 million to \$150 million; Fuels—support the President's request; Advanced Research—support President's request of \$48 million.

Navajo Electrification Demonstration Program.—APPA supports full funding for the Navajo Electrification Demonstration Program at its full authorized funding level of \$15 million. The purpose of the program is to provide electric power to the estimated 18,000 occupied structures in the Navajo Nation that lack electric power. This program has been consistently underfunded.

Federal Energy Regulatory Commission (FERC).—The fiscal year 2011 budget requests \$315 million for FERC, an increase over fiscal year 2010 levels. APPA supports this increase.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF AGRONOMY, CROP SCIENCE
SOCIETY OF AMERICA AND THE SOIL SCIENCE SOCIETY OF AMERICA

The American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America (ASA-CSSA-SSSA) are pleased to submit the following funding recommendations for the Department of Energy for fiscal year 2011. For the Office of Science, ASA, CSSA, and SSSA recommend a funding level of \$4.9 billion, a 10 percent increase over fiscal year 2010 (\$4.47 billion). For the Office of Energy Efficiency and Renewable Energy, we recommend a funding level of \$2.4 billion, a 7 percent increase over fiscal year 2010. Specifics for each of these and other budget areas follow below.

With more than 25,000 members and practicing professionals, ASA-CSSA-SSSA are the largest life science professional societies in the United States dedicated to the agronomic, crop and soil sciences. ASA-CSSA-SSSA play a major role in promoting progress in these sciences through the publication of quality journals and books, convening meetings and workshops, developing educational, training, and public information programs, providing scientific advice to inform public policy, and promoting ethical conduct among practitioners of agronomy and crop and soil sciences.

DEPARTMENT OF ENERGY OFFICE OF SCIENCE

ASA-CSSA-SSSA understand the challenges the Senate Energy and Water Appropriations Subcommittee faces with the tight budget for fiscal year 2011. We also recognize that the Energy and Water Appropriations bill has many valuable and necessary components, and we applaud the subcommittee for funding the DOE Office of Science in the fiscal year 2010 Omnibus Appropriations bill at \$4.470 billion. For fiscal year 2011, ASA, CSSA, and SSSA recommend a funding level of \$4.9 billion, a 10 percent increase over fiscal year 2010. Congress approved the America COMPETES Act of 2007 (Public Law 110-69), recognizing that an investment in basic (discovery) scientific research is essential to providing America the brainpower necessary to maintain a competitive advantage in the global economy and keep U.S. jobs from being shipped overseas. Such an investment is needed to keep U.S. science and engineering at the forefront of global research and development in the biological sciences and geosciences, computing and many other critical scientific fields. The Office of Science supports graduate students and postdoctoral researchers early in

their careers. Nearly one-third of its research funding goes to support research at more than 300 colleges and universities nationwide. Moreover, approximately one-half of the users at Office of Science user facilities are from colleges and universities, providing further support to their researchers. The Office of Science also reaches out to America's youth in grades K–12 and their teachers to help improve students' knowledge of science and mathematics and their understanding of global energy and environmental challenges. This recommended funding level of \$4.9 billion is critical to ensuring our future energy self-sufficiency and as a means to address major environmental challenges including global climate change. Finally, a funding level of \$4.9 billion will allow the Office of Science to: maintain and strengthen DOE's core research programs at both the DOE national laboratories and at universities; provide support for 1,000 PhDs, postdoctoral associates, and graduate students in fiscal year 2011; ensure maximum utilization of DOE research facilities; allow the Office of Science to develop and construct the next generation facilities necessary to maintain U.S. preeminence in scientific research; and enable DOE to continue to pursue the tremendous scientific opportunities outlined in the Office of Science Strategic Plan and in its 20 Year Scientific Facilities Plan.

BASIC ENERGY SCIENCES

Within the Office of Science, the Basic Energy Sciences (BES) Program is a multi-purpose, scientific research effort that fosters and supports fundamental research to expand the scientific foundations for new and improved energy technologies and for understanding and mitigating the environmental impacts of energy use. ASA, CSSA, and SSSA support a fiscal year 2011 funding level of \$1.75 billion, a 7 percent increase over fiscal year 2010, for BES. The portfolio of programs at BES supports research in the natural sciences by focusing basic (discovery) research on, among other disciplines, biosciences, chemistry and geosciences. Practically every element of energy resources, production, conversion and waste mitigation is addressed in basic research supported by BES programs. Research in chemistry has led to the development of new solar photoconversion processes and new tools for environmental remediation and waste management. Research in geosciences leads to advanced monitoring and measurement techniques for reservoir definition. Research in the molecular and biochemical nature of photosynthesis aids the development of solar photo-energy conversion.

Within the Basic Energy Sciences Program, the Chemical Sciences, Geosciences, and Energy Biosciences subprogram supports fundamental research in geochemistry, geophysics and biosciences. For Chemical Sciences, Geosciences, and Energy Biosciences subprogram ASA–CSSA–SSSA recommend \$341.5 million for fiscal year 2011, a 15 percent increase over the fiscal year 2010 funding level. The Geosciences Research Program supports research focused at developing an understanding of fundamental Earth processes that can be used as a foundation for efficient, effective, and environmentally sound use of energy resources, and provide an improved scientific basis for advanced energy and environmental technologies. The Biosciences Research Program supports basic research in molecular level studies on solar energy capture through natural photosynthesis; the mechanisms and regulation of carbon fixation and carbon energy storage; the synthesis, degradation, and molecular interconversions of complex hydrocarbons and carbohydrates; and the study of novel biosystems and their potential for materials synthesis, chemical catalysis, and materials synthesized at the nanoscale.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Within the Office of Science, the Biological and Environmental Research (BER) Program, for more than five decades, has advanced environmental and biological knowledge that supports national security through improved energy production, development, and use; international scientific leadership that underpins our Nation's technological advances; and research that improves the quality of life for all Americans. BER supports these vital national missions through competitive and peer-reviewed research at national laboratories, universities, and private institutions. In addition, BER develops and delivers the knowledge needed to support the President's plan to make America energy independent. ASA–CSSA–SSSA support a 10 percent increase for BER which would bring the funding level to \$664.6 million for fiscal year 2011. ASA, CSSA, and SSSA support a variety of programs within BER including the Life Sciences subprogram which supports Terrestrial Ecosystem Science (which we recommend funding for at \$29.9 million for fiscal year 2011), Terrestrial Carbon Sequestration Research (we recommend \$5.1 million for this program) and the Genomes to Life (GTL) program. Within Genomes to Life (GTL) are programs supportive of bioenergy development including GTL Foundation Research,

GTL Sequencing, GTL Bioethanol Research, and GTL Bioenergy Research Centers, all playing an important role in achieving energy independence for America. We recommend a 12 percent increase over fiscal year 2010 for the Subsurface Biogeochemical Research program, with suggested funding for the program totaling \$55.9 million in fiscal year 2011. Also within BER is the Environmental Remediation subprogram and its Environmental Remediation Sciences Research program, both critical programs to advancing tools needed to clean up contaminated sites.

ASA, CSSA, and SSSA recommend a funding level of \$305.7 million, a 7 percent increase over fiscal year 2010 for BER Climate and Earth System Modeling. Within this subprogram the Climate Change Research Division supports important areas of climate change research including the Ameriflux and a network of research sites.

DEPARTMENT OF ENERGY OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

Biomass is currently the only clean, renewable energy source that can help to significantly diversify transportation fuels in the U.S. DOE's Energy Efficiency and Renewable Energy Biomass Program is helping transform the Nation's renewable and abundant biomass resources into cost competitive, high performance biofuels, bioproducts, and biopower. The Office of Energy Efficiency and Renewable Energy (EERE) manages America's investment in the research and development (R&D) of DOE's diverse energy efficiency and renewable energy applied science portfolio. For the Office of Energy Efficiency and Renewable Energy, we recommend a funding level of \$2.4 billion, a 7 percent increase over fiscal year 2010. The fiscal year 2011 EERE budget should continue to maintain focus on key components of the AEI and Twenty in Ten including the Biofuels Initiative to develop affordable, bio-based transportation fuels from a wider variety of feedstocks and agricultural waste products. Note: ASA-CSSA-SSSA strongly oppose the use by the Department of the term "agricultural wastes". Crop residues, e.g., corn stover, play a very important role in nutrient cycling, erosion control and organic matter development. Recent studies have shown that excessive removal of crop residues from agricultural lands can lead to a decline in soil quality. By no means should they ever be referred to as "wastes".

BIOMASS AND BIOREFINERY SYSTEMS

Within EERE, the Biomass and Biorefinery Systems R&D program plays an important role providing support for Regional Biomass Feedstock Development Partnerships and Infrastructure Core R&D programs, both within Feedstock Infrastructure. For the Biomass and Biorefinery Systems R&D program, we recommend a 7 percent increase for fiscal year 2011 which would bring funding to \$235 million. Activities included within this program are resource assessment, education, sustainable agronomic systems development, and biomass crop development. The mission of the Biomass Program is to develop and transform our domestic, renewable, and abundant biomass resources into cost-competitive, high performance biofuels, bioproducts and biopower through targeted RD&D leveraged by public and private partnerships. ASA, CSSA, and SSSA support \$39.58 million in funding for the Feedstock program (formerly the Feedstock Infrastructure program).

CLIMATE CHANGE RESEARCH

ASA, CSSA, and SSSA urge the subcommittee to continue to provide strong support for Climate Change Research to the following programs as follows: U.S. Global Change Research Program (USGCRP), DOE allocation of \$176.9 million. This program will increase our understanding of the impacts of global climate change and also develop tools and technologies to mitigate these impacts.

BASIC AND APPLIED R&D COORDINATION

The Office of Science continues to coordinate basic research efforts in many areas with the Department's applied technology offices. Within this area is Carbon Dioxide Capture and Storage R&D for which we recommend \$20,055,000.

NATIONAL LABORATORIES

The Office of Science manages 10 world-class laboratories, which often are called the "crown jewels" of our national research infrastructure. The national laboratory system, created over a half-century ago, is the most comprehensive research system of its kind in the world. Five are multi-program facilities including the Oak Ridge National Laboratory.

NATIONAL ENERGY TECHNOLOGY LABORATORY (NETL)

NETL's Carbon Sequestration Program is helping to develop technologies to capture, purify, and store carbon dioxide (CO₂) in order to reduce greenhouse gas emissions without adversely influencing energy use or hindering economic growth. Terrestrial sequestration requires the development of technologies to quantify with a high degree of precision and reliability the amount of carbon stored in a given ecosystem. Program efforts in this area are focused on increasing carbon uptake on mined lands and evaluation of no-till agriculture, reforestation, rangeland improvement, wetlands recovery, and riparian restoration. ASA, CSSA, and SSSA urge the subcommittee to direct the Department to increase funding for its terrestrial carbon sequestration program, specifically The Regional Carbon Sequestration Partnerships, which are collaborations between Government, industry, universities, and international organizations funded by DOE to determine the most suitable technologies, regulations, and infrastructure needs for carbon capture and sequestration.

OAK RIDGE NATIONAL LABORATORY (ORNL)

ORNL is one of the world's premier centers for R&D on energy production, distribution, and use and on the effects of energy technologies and decisions on society. Clean, efficient, safe production and use of energy have long been our goals in research and development. At ORNL, unique facilities for energy-related R&D are used both for technology development and for fundamental investigations in the basic energy sciences that underpin the technology work.

Thank you for your thoughtful consideration of our requests.

PREPARED STATEMENT OF THE COAL UTILIZATION RESEARCH COUNCIL (CURC)

INTRODUCTION

This statement is submitted on behalf of the membership of the Coal Utilization Research Council (CURC), an organization of coal-using utilities, coal producers, equipment suppliers, universities and institutions of higher learning, and several State government entities interested and involved in the use of coal resources and the development of coal-based technologies.¹

THE IMPORTANCE OF THE DOE/FE RD&D PROGRAM

CURC believes there is a serious disconnect in public policies regarding CCS technology. On one hand, we observe general agreement among policy makers that large reductions in GHG emissions in the 2030–2050 timeframe are essential to meet climate goals under discussion; that improved technologies are key to meeting those goals; that CCS is a crucial technology; and that public sector-private sector collaboration is necessary to launch CCS technology. On the other hand, based on budgets requested and enacted for the past several years and proposed for fiscal year 2011, we observe an unwillingness to provide the public share of resources necessary to develop and enable deployment of CCS within the timeframe set forth by those defining emission reduction targets. Insufficient public resources means we are falling farther and further behind and there is less expectation each passing year that CCS will be ready for widespread commercial use by 2020.

With the advent of a greenhouse gas regulatory program in this country, it is vitally important that affordable and reliable carbon capture and storage (CCS) technologies be available to minimize the economic impacts upon the American consumer while continuing to allow the Nation to reap the economic and energy security benefits associated with using our most abundant domestic fossil fuel resource. Recent analyses by both the EPA and the DOE/EIA have concluded that successful development and deployment of CCS technology can reduce the cost of compliance with GHG legislation by one-half. Hence, an effective coal-CCS RD&D program is essential for meeting environmental goals, enhancing our country's energy security, insuring adequate supplies of energy at affordable prices, as well as preserving American industrial competitiveness and growing American jobs in domestic and global markets.

¹ Several members of CURC are not-for-profit organizations designated as such for Federal tax law purposes. Such organizations are prohibited in whole or in part from undertaking advocacy activities with respect to Federal Government appropriations. This written statement could be construed as such an activity. Membership contributions made to CURC by these organizations are not used for these advocacy purposes; rather such contributions are utilized to undertake analyses and other educational activities as provided by CURC.

SPECIFIC RECOMMENDATIONS

CURC offers the following recommendations for fiscal year 2011 funding for the Coal RD&D program.

Clean Coal Power Initiative.—DOE did not request any funding in fiscal year 2010 or fiscal year 2011 for large scale commercial applications of CCS technology, noting that \$800 million was provided in the American Recovery and Reinvestment Act (ARRA) for the CCPI Round 3 program. The number of CCS-related projects that are underway is insufficient to meet the programmatic goal of establishing CCS technologies ready for commercial deployment by 2020. CURC believes that an expanded CCPI program is integral to the commercialization of CCS technologies, and therefore, in the strongest terms possible, CURC recommends that the fiscal year 2011 budget include funding to initiate a CCPI Round 4 program. Congress is encouraged to appropriate at least \$50 million in fiscal year 2011 to be augmented in fiscal year 2012 with funds sufficient to then conduct a CCPI 4 solicitation.

FutureGen.—Funding for FutureGen has been made available through the ARRA. CURC reiterates its support for this project as an important and necessary step in the demonstration of an integrated CCS system. This integration of electricity generation with CCS is fundamental to the learning necessary to make CCS a commercial reality.

FUELS & POWER SYSTEMS

—*Innovations for Existing Plants (and Advanced Combustion).*—The administration's request for fiscal year 2011 includes an increase in this line item to \$65 million, compared to \$52 million enacted in fiscal year 2010. CURC recommends a budget of \$84 million that should be used to support technologies that increase the efficiency of coal conversion to energy and that contribute to reducing the costs of carbon capture from combustion-based power generation—for both new and existing steam power plants. To achieve these goals funds should be allocated to address specific needs for advanced combustion, including oxy-combustion and next generation oxy-combustion process cycles, advanced solvents for post combustion capture, the high temperature materials program for ultrasupercritical cycles, as well as emphasis on other new power plant efficiency-improving techniques which do not depend on steam temperature and pressure leaving the boiler. Finally, the implementation of post-combustion carbon capture will place increased demands on what are already scarce supplies of cooling water, and, as a result, research on water management technologies for coal-fired power plants need to be an important component of the IEP program; recommend \$4 to \$6 million for water management programs.

—*Advanced Integrated Gasification Combined Cycle.*²—Funding provided for IGCC technology has consistently fallen short of the amounts deemed necessary to launch the next generation of this technology as defined in the CURC–EPRI Technology Roadmap. The administration's request for fiscal year 2011 is a further decrease from these already insufficient funding levels. CURC recommends that the funding for this line item be increased from the requested \$55 million to at least \$80 million. This increased budget is important to achieve:

- Advances in coal feed systems;
 - Low-cost oxygen production (such as ITM oxygen);³
 - Advanced gasifier designs (including the gasifier itself; its major components such as feed injection/pumping and refractory materials, as well as gasifier modifications to achieve less costly air separation);
 - Warm syngas cleanup for sulfur and other coal-based syngas contaminants (such as mercury and arsenic);
 - Hydrogen/CO₂ separation and recovery (including advanced membrane systems);
 - CO₂ capture at elevated pressure (to reduce CO₂ compression costs); and
 - Studies and RD&D aimed at the integration of these advanced gasification technologies to significantly reduce overall gasification capital costs and improve overall efficiencies.
- Turbines.*—The latest generation of advanced gas turbines (the “G” and “H” class of turbines) is not ready to meet the demands of IGCC plants with high

²It is also important to note that advances in this area not only support advanced IGCC but support all gasification programs in general, including industrial gasification, hydrogen and fertilizer production, SNG, and coal-to-liquids programs and to these ends this program should encompass the concept of advanced gasification technology.

³This program should include sufficient funding to insure that the 100-ton per day ITM Intermediate Scale Test Unit will be completed and operations commenced.

levels of CO₂ capture. Reduced funding in the last few years has delayed progress and jeopardized DOE's 2012 goal of developing advanced turbines capable of operating on 100 percent hydrogen. The Turbines program needs an additional \$14 million, for a total of \$45 million in fiscal year 2011. Technical focus areas for this funding should include:

- Promising material systems (base alloys, bond coats and thermal barrier coatings) for hot gas path parts including rotating and stationary airfoils;
- Technology for enhanced cooling effectiveness of hot gas path parts;
- Methods for containing by-pass flows in the combustor-expander transition piece and the airfoil tip-casing interface; and
- Continuation of work with the NETL in-house research group, other national laboratories and U.S. universities to assess combustor designs and the fundamentals associated with hydrogen combustion and turbine subsystems.

It is important to note that all carbon fuels, including natural gas, will need to capture CO₂ in order to achieve the levels of reduced CO₂ concentrations being proposed in various climate change legislation now under consideration by Congress.

—*Carbon Sequestration.*—Funding under this program offers the appearance of being slightly below the \$160 million level recommended by CURC. However, this DOE program includes approximately \$50 million for CO₂ capture, whereas the CURC roadmap places capture activity with the IGCC and IEP programs. The result is that CURC believes the fiscal year 2011 Carbon Sequestration request falls significantly short of needs, and this shortfall will result, for example, in the slow-down of some of the Regional Carbon Sequestration Partnership projects. Ultimately, the vast majority of CO₂ sequestration will likely take place in saline formations and even under the seabed. As a consequence the majority of funding for this program should be focused on sequestration into saline formations rather than for CO₂ hydrocarbon recovery or other CO₂ re-use projects. Moreover, some ongoing tests are with non-anthropogenic CO₂, or non-power system CO₂, whereas experience integrating commercial scale capture at power systems with injection into saline formations is the foundation for broad deployment of CCS. At a minimum the funding level for this program should be increased to \$150 million versus the \$143 million requested.

—*Fuels.*—CURC supports the President's budget recommendation for hydrogen from coal, research for hydrogen separation membranes for power production, and developing components for process intensification to reduce the capital cost of power systems. CURC believes that coal-to-substitute natural gas (C-SNG) systems are commercial and that these systems may provide a relatively low cost mechanism to provide the large volume of CO₂ needed to simulate commercial power plant CO₂ injection processes. Also, gasification of coal and biomass (zeroed out in the fiscal year 2011 Request) combined with CCS may be a useful pathway to provide transportation fuels with a lower CO₂ footprint than conventional sources of these fuels.

—*Advanced Research.*—The budget request for Advanced Research focuses on sensors and controls, advanced materials, and new computer simulation activities for capture and storage of CO₂. The new computer simulation activities would boost overall Advanced Research funding by \$20 million from \$28 million (fiscal year 2010) to \$48 million (fiscal year 2011). CURC supports a balanced advanced research program at DOE or through the newly created ARPA-E program where use of a portion of the funds is tightly integrated with the overall coal R&D program with clear deliverables which will address barriers or any technology "gaps" to meeting DOE's objective of commercial deployment of CCS by 2020. To achieve this end this program directly supports externally funded applied research programs carried out by university and industry-based organizations that are seeking research results which are responsive to the current marketplace. The AR program or an ARPA-E program also should vigorously support new initiatives that promise ways to cost-effectively prevent or capture CO₂ from the use of carbon-based fuels. This type of basic research looks beyond today's technologies to the next generation and private sector funds may not be readily available. Again, we believe a strong relationship between industry, academia and DOE is vital.

—*University and Workforce Training and Education.*—CURC additionally recommends that the DOE budget be available to support academic or university based programs to build up the expertise that is declining in coal technology research and development activities. A well funded advanced research program, as well as university based programs, can help replenish the scientists and engineers needed to create the coal utilization systems and carbon management systems of the future. Also, appropriations should be made to reinstate pro-

grams to train the skilled trades workforce needed to construct and operate the energy industry of tomorrow including the utilization of CCS technologies.

—*Fuel Cells.*—The DOE Solid State Energy Conversion Alliance (SECA) program is ready to move into MW-scale demonstrations. A primary objective of the program is the development of high temperature solid oxide fuel cells (SOFC) for integration with advanced coal gasification systems. Fuel cells offer the promise of a step change in the way electricity is generated in the future and, if successful, could provide highly efficient, cost-competitive systems capable of capturing nearly all of the CO₂ from the conversion process, minimizing water requirements for the system and greatly reducing emissions of other criteria pollutants.

Title XVII Loan Guarantee Program

Consistent with the loan guarantee capacity already provided or sought for other energy sources (\$65.5 billion for renewables and energy efficiency and \$56.5 billion for nuclear power) and given the potential impact of widely deployed CCS technology upon CO₂ reductions globally, it is recommended that loan guarantee authority for fossil energy and CCS projects be increased by \$20 billion. There appears to be very significant interest among CCS-related fossil fuel projects for use of loan guarantees if made available.

SUMMARY AND COMMENTS ON SIGNIFICANT ISSUES RELATED TO THE FISCAL YEAR 2011 BUDGET REQUEST

The programs administered and supported through the Department's Fossil Energy office have been distinguished by efforts to foster collaboration with industry research, development and demonstration efforts, as well as a broad spectrum of university research organizations. These programs between industry, Government and the academic community have enabled participants to actively engage in each part of the technology development chain from basic research to applied research and development and then demonstration and early commercial deployment. Implementing a restructuring of the FE budget into four new cross-cutting program areas could facilitate even greater partnering opportunities, focus programs upon the critical issues surrounding CCS development, quickly identify and address technology gaps, and create greater transparency in defining and exhibiting program goals and accomplishments. During this restructuring, the benefits of collaboration should be an important consideration if it is contemplated that there will be any new and significant involvement of other Federal laboratories that have little or no historical ties to the industries that rely upon coal and benefit from collaboration through the FE program.

CURC supports the request to increase the Department's advanced research budget so long as increases are inclusive and extend funding support to research efforts at universities and industry participants in all regions of the country wherever the competency and excellence exists. CURC also supports the request to increase the computationally based research (subject to the comments below) budget. The new emphasis upon computational modeling is conceptually attractive as a means to reduce the amount of time and funding required in fully developing, demonstrating and deploying technology. This funding should be implemented through existing structural models already established by NETL for industry—university collaborative research—and we recommend such an approach which will use structures in place and further support already successful collaboration. Finally, if these new programs are to be accepted by industry as a tool to create substitutes for “steel in the ground” then it is essential that industry be involved in the development of the computer models to insure that practical considerations in the construction and operation of power plants or industrial facilities are taken into account. Therefore, industry should be consulted to determine if computer models are an appropriate surrogate for actual plants being constructed and if yes, and funding is to be provided, then direct industry input is recommended when constructing the models themselves.

Beyond basic research CURC is expressly concerned that no funding is requested to initiate a next CCPI solicitation for advanced coal and CCS demonstrations. If we are to successfully develop a portfolio of advanced technologies to utilize coal efficiently and with minimal environmental impact then we must continue support for demonstration projects.

PREPARED STATEMENT OF THE UNIVERSITY OF CHICAGO

My name is Donald Levy and I am Vice President for Research and National Laboratories at the University of Chicago. The University of Chicago manages, sup-

ports, and engages with two major Federal research centers: Argonne National Laboratory and the Fermi National Accelerator Laboratory (Fermilab). The University's management and operations responsibility for Argonne dates back to its founding in 1946 as the Nation's first national laboratory, and is a direct descendant of the University of Chicago's Metallurgical Laboratory, part of the World War II Manhattan Project. In partnership with Universities Research Association, the University of Chicago was awarded the M&O contract by the Department of Energy for Fermilab in 2007. Argonne and Fermilab are leaders in ensuring U.S. competitiveness in the global economy, and providing unmatched science talent and capacity for the Midwest and the Nation. The fundamental science and applied research that takes place in them, often in collaboration with the University of Chicago and numerous other universities across the country, continues to push the frontiers of scientific discovery, energy security, environmental sustainability and national security. I am pleased to testify in strong support for the administration's proposed fiscal year 2011 budget request of \$5.1 billion for the Office of Science.

THE DEPARTMENT OF ENERGY'S OFFICE OF SCIENCE

The Department of Energy's Office of Science (SC) is the steward of 10 national laboratories—including the Argonne National Laboratory and Fermi National Accelerator Laboratory. This system of national laboratories provides direct and vital support for the mission of the Department's science programs and represents the most comprehensive research infrastructure system of its kind in the world. A high level of collaboration among all of the national laboratories with the university community and industry in the use of world-class scientific equipment and supercomputers, facilities, and multidisciplinary teams of scientists increases their collective contribution to DOE and the Nation. The national laboratories sponsored by the SC enables the United States to remain at the forefront of discovery science. They ensure that facilities and projects of great scale are part of the Nation's scientific infrastructure and provide the foundation for translating the results of discovery science into technological applications.

SC is also one of the Nation's largest supporters of peer-reviewed basic research, providing 40 percent of Federal support in the physical sciences while supporting approximately 25,000 Ph.D.s, graduate students, undergraduates, engineers, and support staff at more than 300 universities and at all 17 DOE laboratories. In fiscal year 2010, the Office of Workforce Development for Teachers and Scientists expects to support over 1,100 undergraduates in research internships at the DOE laboratories and nearly 300 K–16 educators. SC is proposing to increase the Graduate Fellowship Program to support approximately 400 graduate students in the out-years.

The subcommittee is faced with very tight fiscal constraints and a difficult set of choices. Given that situation, the fiscal year 2011 DOE budget for SC deserves the subcommittee's strong support for the following reasons: It invests in science for national needs in clean energy, the environment and materials research; it provides vital support for national scientific user facilities relied on by universities and industry working on research that can't be performed anywhere else in the United States; and it supports scientific and technological education and related workforce development.

The fiscal year 2011 budget request makes much needed investments to harness the power of American ingenuity. This request will help create clean energy jobs, expand the frontiers of science, reduce dependence on foreign oil, and help curb the carbon pollution that threatens our planet. If one advance could transform America's prospects, it would be having a range of clean, efficient and renewable energy technologies, ready to power our cars, our buildings and our industries, at scale, while creating jobs and protecting the planet. If we want to own those future technologies, there is only one path: sustained support for research.

We should not count on private industry alone to make the necessary investments. Since 1980, research investment by U.S. energy companies paralleled the drop in public research. By 2004, corporate energy R&D stood at just \$1.2 billion in today's dollars. This level might suit a cost-efficient and technologically mature fossil-fuel-based energy sector. However, it is very much out of step with any industry that depends on innovation.

The lesson is that while industry must support development and commercialization, only Government can prime the pump of research. Congress funded the basic research that spawned the information technology revolution and the biotechnology revolution. Today, to spark an energy revolution, Congress—and this subcommittee in particular—must lead again.

The potential, from the economy to global security to climate, is boundless. Yet we are not the only ones who have noticed. If we fail to make major strategic invest-

ments in energy research now, we will find ourselves overtaken by our competitors, from China and India to Germany and Japan. Other countries have the money and motivation, and they are chasing the technology almost as fast as we are. We must make sure that in the energy technology markets of the future, we have the power to invent, produce and sell, not the obligation to buy.

The handwriting is clearly on the wall—the Great Wall.

ARGONNE AND FERMI NATIONAL LABORATORIES

In the coming years, the Argonne National Laboratory will pursue major initiatives that support the Department of Energy's research goals to create innovative and transformational solutions to the Nation's grand scientific challenges. These initiatives have inspirational goals that will keep Argonne at the very forefront of scientific discovery and engineering excellence. Three of the major initiatives: Hard X-ray Sciences, Leadership Computing, and Materials and Molecular Design and Discovery, emphasize the development of next generation scientific tools and materials. Five other major initiatives: Energy Storage, Alternative Energy and Efficiency, Nuclear Energy, Biological and Environmental Systems, and National Security, directly address practical energy, environment and security challenges. A number of these initiatives, in areas such as computational sciences, molecular design and biological and environmental systems are being conducted in close collaboration with the University of Chicago's core research capabilities.

Fermilab's world-class scientific research facility allows qualified researchers from around the world to conduct fundamental research at the frontiers of high-energy physics and related disciplines. Thousands of scientists have used Fermilab's particle accelerators and experiments to study the universe at the smallest and largest scales. The extraordinary technology developed for particle physics has often led to real-life applications—from accelerators for cancer treatment to the World Wide Web. Fermilab's broad scientific program pushes forward on the three interrelated frontiers of particle physics. Each uses a unique approach to making discoveries, and all three are essential to answering key questions about the laws of nature and the cosmos.

Among the initiatives proposed by the Office of Science of particular importance to the University of Chicago, Argonne and Fermilab are:

- Basic Energy Sciences program support for upgrades to Argonne's Advanced Photon Source (APS). The high-brilliance x-rays produced at the APS—the brightest in the Western Hemisphere—has been instrumental in developing new and improved energy sources, bettering the environment, battling diseases, improving technologies, unlocking the secrets of our planet and universe, and furthering the education of today's and tomorrow's scientists. We urge the subcommittee to provide strong encouragement to DOE to support vital future performance enhancements in the APS;
- Advanced Scientific Computing Research program support for Argonne's Leadership Computing Facility. The application of state-of-the-art supercomputers to modeling and simulation can play breakthrough roles linked to our energy security, climate change and sharpen America's competitive edge. The applications also provide benefits to program offices and their external users throughout the Department of Energy. We urge the subcommittee to support the fiscal year 2011 budget request and remain committed to a robust funding path in future years in order to fully achieve the next level of computational power needed to address the next series of important large-scale challenges;
- The High Energy Physics Program, including continued support for Tevatron Collider research, enhancements for the neutrino physics program and complex wide infrastructure improvements;
- The newly proposed Energy Innovation Hub for Batteries and Energy Storage—which will focus on integrating from fundamental research through potential commercialization of electrical energy storage relevant to transportation and the electric grid; and
- Vital support for individual investigator, small group, and Energy Frontier Research Centers (EFRCs) in areas complementing the initial suite of 46 EFRCs awarded in fiscal year 2009.

CONCLUSION

As President Obama made clear in his remarks to the National Academy of Sciences in April 2009, the public sector must invest in research and innovation not only because the private sector is sometimes reluctant to take large risks, but because the rewards will be broadly shared across the economy. Leading requires assembling a critical mass of the best scientists and engineers to engage in mission-

oriented, cross-disciplinary approaches to addressing current and future energy challenges. To develop clean energy solutions and maintain the U.S. leadership role in science and innovation, the Department must cultivate the science, technology, engineering, and mathematics workforce of the next generation. The University of Chicago strongly supports the administration's goal to double funding for the DOE's Office of Science between fiscal year 2007 to fiscal year 2017, a goal that is consistent with the recommendations in the National Academies' 2005 report *Rising Above the Gathering Storm*. To that end, the University of Chicago strongly supports funding of at least \$5.1 billion for SC in fiscal year 2011—the amount requested by the administration.

The subcommittee is faced with a difficult and probably thankless job—the allocation of too few resources among a wide variety of worthy and compelling public policy objectives. Some of these objectives are near term and funding provided for them can lead to tangible benefits such as the cleanup of nuclear waste sites or water and flood protection projects funded through the Corps of Engineers. The benefits of investing in research are less visible in the near term. However, they are essential to the long term health and economic vitality of the Nation. Appreciating the difficult budget environment the subcommittee must confront, the University of Chicago respectfully requests the maximum support possible for the important research programs of DOE in the context of the fiscal year 2011 appropriations process.

Thank you for the opportunity to provide these views.

PREPARED STATEMENT OF THE SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS
(SIAM)

Summary.—This written testimony is submitted on behalf of the Society for Industrial and Applied Mathematics (SIAM) to ask you to continue your support of the Department of Energy (DOE) Office of Science by providing \$5.121 billion in fiscal year 2011. In particular, we urge you to provide significant support for the Applied Mathematics Program within the Office of Science. We also emphasize the importance of support for graduate students, post-doctoral fellows, and early career researchers.

My name is Douglas Arnold and I am the President of the Society for Industrial and Applied Mathematics (SIAM). Today I am submitting this written testimony for the record to the Subcommittee on Energy and Water Development of the Committee on Appropriations of the U.S. Senate.

SIAM has approximately 13,000 members, including applied and computational mathematicians, computer scientists, numerical analysts, engineers, statisticians, and mathematics educators. They work in industrial and service organizations, universities, colleges, and government agencies and laboratories all over the world. In addition, SIAM has over 400 institutional members—colleges, universities, corporations, and research organizations.

First, I would like to emphasize how much SIAM appreciates your subcommittee's continued leadership on and recognition of the critical role of the Department of Energy (DOE) Office of Science and its support for mathematics, science, and engineering in enabling a strong U.S. economy, workforce, and society. In particular, we thank you and your colleagues for the significant increases in funding provided for the Office of Science's mathematical and computing programs in the fiscal year 2010 Consolidated Appropriations bill.

Today, I submit this testimony to ask you to continue your support of the DOE Office of Science in fiscal year 2011 and beyond. In particular, we request that you provide the Office of Science with \$5.121 billion, the level requested by the President for this agency in his fiscal year 2011 budget. This represents a 4.4 percent increase over the Office's fiscal year 2010 appropriated level and would continue the effort to double funding for the Office of Science, as endorsed by Congress in the America COMPETES Act and by the President in his fiscal year 2011 budget request.

The Nation faces critical challenges in energy, including in energy efficiency, renewable energy, improved use of fossil fuels and nuclear energy, future energy sources, and reduced environmental impacts of energy production and use. As DOE and the research community design a long-term strategy to tackle these issues, the tools of mathematics and computational science (theory, modeling, and simulation) have emerged as a central element in designing new materials, predicting the impact of new systems and technologies, and better managing existing resources. Already, mathematical and computing researchers in universities, national laboratories, and industry are providing insights that propel advances in such fields as climate modeling, nanotechnology, biofuels, genomics, and materials fabrication.

THE ROLE OF MATHEMATICS IN MEETING ENERGY CHALLENGES

SIAM members come from many different disciplines, but have a common interest in applying mathematics in partnership with computational science toward solving real-world problems. DOE was one of the first Federal agencies to champion computational science as one of the three pillars of science, along with theory and experiment, and SIAM deeply appreciates and values DOE activities.

In August 2007, an independent panel of mathematicians reviewed the challenges and strategic plans of all units of DOE in order to better define the goals for the DOE Applied Mathematics Program, which is located within the Office of Advanced Scientific Computing Research (ASCR) in the Office of Science.¹ The panel considered a broad and varied array of questions that the DOE must answer in the coming years. A representative subset of such questions includes:

- Can we predict the operating characteristics of a clean coal power plant?
- How stable is the plasma containment in a Tokamak?
- How quickly is climate change occurring and what are the uncertainties in the predicted time scales?
- How quickly can an introduced bio-weapon contaminate the agricultural environment in the United States?
- How do we modify models of the atmosphere and clouds to incorporate newly collected data of possibly new types?
- How quickly can the United States recover if part of the power grid became inoperable?

In these and many other cases, the answer is dependent on improved understanding of complex systems. (These are systems that have high levels of uncertainty, lack master plans, and are susceptible to breakdowns that could have catastrophic consequences. Understanding complex systems helps mitigate these risks and facilitate the development of controls and strategies to make systems more efficient.) In light of this broad need, the panel recommended that DOE focus on three strategies for addressing the gaps in our understanding.

- Predictive modeling and simulation of complex systems.
- Mathematical analysis of the behavior of complex systems.
- Using models of complex systems to inform policy makers. (This includes advancing the mathematics that supports risk analysis techniques for policy-making involving complex systems that include natural and engineered components, and economic, security, and policy consequences.)

DEPARTMENT OF ENERGY OFFICE OF SCIENCE

Activities within ASCR play a key role in supporting research that begins to fulfill the needs described above. Particularly critical programs include: the Applied Mathematics program, the Scientific Discovery through Advanced Computing (SciDAC) program, and programs to maintain the pipeline of the mathematical workforce. SIAM supports the \$426 million requested for ASCR for fiscal year 2011, while urging that the increase in funding be more balanced among ASCR programs and not entirely directed to investments in computing hardware. Without investments in algorithm research, software development, and partnerships between mathematicians, disciplinary researchers, and computer and computational scientists, we cannot realize the full benefit of new high performance computers or effectively develop the next generation of such computers.

The applied mathematics and computational science and engineering work supported by the Applied Mathematics Program is a necessary element for many of the flagship efforts of the Office of Science and other units of DOE. Therefore, partnerships within the Department are critical for applying mathematics to key challenges in effective creation and use of a variety of energy sources. SIAM supports ASCR plans to initiate new partnerships with other DOE offices such as the Office of Electricity Delivery and Energy Reliability, the Office of Nuclear Energy, and the Office of Environmental Management. SIAM also supports the proposed activity on uncertainty and climate change within the Biological and Environmental Research Office, and the proposed activity on Computational Design of Advanced Engines within the Basic Energy Sciences Office.

¹Applied Mathematics at the U.S. Department of Energy: Past, Present and a View to the Future. A Report by an Independent Panel from the Applied Mathematics Research Community, May 2008. Available on line at http://brownreport.siam.org/Document%20Library/Brown_Report_May_08.pdf.

SUPPORTING THE PIPELINE OF MATHEMATICIANS AND SCIENTISTS

Investing in the education and development of young scientists and engineers is a major step that the Federal Government can take to ensure the future prosperity and welfare of the United States. Currently, the economic situation is negatively affecting the job opportunities for young mathematicians—at universities, companies, and other research organizations. It is not only the young mathematicians who are not being hired who will suffer from these cutbacks. The research community at large will suffer from the loss of ideas and energy that these graduate students, postdoctoral fellows, and early career researchers bring to the field, and the country will suffer from the lost innovation.

Maintaining the pipeline of the mathematical workforce with programs that fund research and students is especially important because of the foundational and cross-cutting role that mathematics and computational science play in sustaining the Nation's economic competitiveness and national security, and in making substantial advances on societal challenges such as energy and the environment. DOE programs support the educational and professional development of the researchers who will, at universities, companies, and the national laboratories, tackle the research problems (such as the complex system modeling described above) needed to change energy usage in this country. These young mathematicians and computational scientists are the drivers and employees of the clean energy economy.

Within the Office of Advanced Scientific Computing Research, the Computational Science Graduate Fellowship program is a highly successful and model program that enables students to receive robust training in mathematics and also learn to interface with a wide variety of other fields. We request that strong support for this program continue, as well as ongoing support for post-doctoral fellows at DOE national laboratories and universities. In addition, we endorse DOE's proposed continuation in fiscal year 2011 of the Office of Science Early Career Research Awards and Graduate Fellowships programs begun with funding from the American Recovery and Reinvestment Act.

We are also supportive of the proposed DOE education initiative, RE-ENERGYSE (REgaining our ENERGY Science and Engineering Edge). We too believe in the core goal of raising the number of students studying in areas that contribute to the fundamental understanding of energy science and engineering systems. In particular, we support graduate research fellowships in relevant fields, such as applied mathematics, and programs that encourage universities to establish multidisciplinary research and education programs, such as in computational science, which is a key element in projects studying and creating clean energy capabilities.

CONCLUSION

The programs in the Office of Science, particularly those discussed above, are important elements of DOE's efforts to fulfill its mission. They contribute to the goals of dramatically transforming our current capabilities to develop new sources for renewable and low-carbon energy supplies and improve energy efficiency, positioning the United States to lead on climate change policy, technology, and science, and facilitating DOE's effort to increase U.S. competitiveness by training and attracting the best scientific talent into DOE headquarters and laboratories, the American research enterprise, and the clean energy economy.

SIAM is aware of the significant fiscal constraints facing the administration and Congress this year, but we note that, in the face of economic peril, Federal investments in mathematics, science, and engineering create and preserve good jobs; stimulate economic activity; and help to maintain U.S. pre-eminence in innovation, upon which our economy depends.

I would like to conclude by thanking you again for your ongoing support of the DOE Office of Science and the actions you have already taken to enable DOE and the research and education communities it supports, including thousands of SIAM members, to undertake the activities that contribute to the health, security, and economic strength of the United States. The DOE Office of Science needs sustained annual funding increases to maintain our competitive edge in science and technology, and therefore we respectfully ask that you continue your robust support of these critical programs into the future.

I appreciate the opportunity to provide testimony to the subcommittee on behalf of SIAM and look forward to providing any additional information or assistance you may ask of us during the fiscal year 2011 appropriations process.

PREPARED STATEMENT OF GE ENERGY

Overview.—The following testimony is submitted on behalf of GE Energy (GE) for the consideration of the subcommittee during its deliberations regarding the fiscal year 2011 budget requests for the Department of Energy (DOE). In particular, GE recommends: (1) in the Renewable Energy budget, support for the new Offshore Wind Technology program; (2) in the Fossil Energy program, greater focus on carbon capture technologies for new plants and increased investment in integrated gasification combined cycle technology; (3) in Nuclear Energy, support for additional nuclear loan guarantee authority; and (4) funding in Electricity Delivery and Energy Reliability to accelerate smart grid deployment.

Renewable Energy.—GE supports the request for \$49 million in funding for the new Offshore Wind Technology Program. Investment in pilot projects will enhance learning, improve infrastructure, and pave the way for commercial scale offshore wind to become a reality in the United States.

For emerging offshore as well as maturing onshore applications, blades and drive trains are the most critical wind turbine components. Research and development into advanced materials, advanced manufacturing, design for logistics, advanced power conversion, and drive train systems can increase energy production, increase reliability, reduce material cost, and lower the overall cost of energy. New power generation technologies, such as higher torque density generators, can be adapted to wind. As penetration of wind energy increases, significant advances are needed to develop solutions for grid integration of this variable resource. Government investment in these areas, when combined with industry cost share, can significantly accelerate technology advancements beyond what industry can accomplish on its own.

Fossil Energy.—In Coal R&D, within the Fuels and Power Systems line item, an \$8 million reduction is being proposed for the Advanced Integrated Gasification Combined Cycle program while funding for the Innovations for Existing Plants program would be increased by \$13 million. GE is concerned that these funding changes indicate a fundamental and troubling shift in DOE's emphasis. The increased funding for Existing Plants will be focused on small-scale pilots—essentially returning to the bench. This is a flawed strategy. It implies DOE's acceptance of the long time span—over a decade or more—from bench to commercial deployment. Over this timeframe, while the creation of jobs associated with commercializing CCS is delayed, existing plants that would benefit will be moving closer to retirement, and therefore unlikely to warrant investment in new technology to extend their lives.

Rather than focusing taxpayer dollars in numerous small pilot scale cleaner coal experiments, the time has come to invest in technology enhancements applicable to new cleaner coal plants and proven technologies for carbon capture such as gasification within integrated gasification combined cycle (IGCC). In contrast to combustion technology, gasification is well suited for carbon capture and proven in commercial chemical applications. IGCC with carbon capture is commercially available to the utility industry today. However the higher initial capital cost of IGCC combined with the additional cost and parasitic loads from carbon capture currently place it at a disadvantage relative to power generation from natural gas. If coal with its economic, jobs and infrastructure benefits is to continue in our energy mix, improvements in IGCC cost and performance are needed to reach cost-parity with natural gas. While we believe much of the cost gap can be closed through deployment of IGCC with carbon capture, further technology improvements in IGCC have the highest chance of making their way to commercial deployment and reducing the ultimate costs of CCS.

We therefore recommend that the fiscal year 2011 budget for IGCC be increased by \$25 million for total funding of \$80 million, with the increase focused on the development of key cost and performance enhancements consisting of (1) IGCC construction optimization (\$6 million); (2) syngas cooler fouling prevention (\$4 million); (3) fundamental gasification modeling (\$4 million); (4) startup and shutdown optimization (\$2 million); (5) HAPS characterization (\$2 million); (6) advanced instrumentation and controls (\$4 million); and (7) trace metals balance and detection (\$3 million).

Water Management (Innovations for Existing Plants).—Large amounts of water are needed to produce or extract energy, and large amounts of energy are needed to treat or transport water. What is more, CO₂ capture increases raw water usage by up to 125 percent, depending on the underlying technology. In order to achieve DOE's aggressive goals of reducing freshwater withdrawals and consumption 50 percent by 2015 and 70 percent by 2020, water-related R&D funding is needed. Yet DOE requested no new funding for the water management subprogram under the

Innovations for Existing Plants program in fiscal year 2011. GE believes that funding for water R&D should be provided in the amount of \$40 million for innovative water reuse technologies and demonstration projects including: cooling tower blow-down reuse, Flue Gas Desulphurization (FGD) wastewater reuse and recovery, ash pond solids reduction, and treatment and reuse of produced water from unconventional oil and natural gas production to further reduce environmental impacts and operational costs of upstream energy processes. Support also is needed to advance reuse/treatment technologies for the conversion of impaired wastewater streams into sources of renewable water in areas of water scarcity, reducing the need to use energy to transport water over long distances and to support electricity generation.

Clean Coal Power Initiative (CCPI).—The CCPI plays a vital role in validating and testing advanced technology. The significant number of applications in response to the CCPI-3 solicitation demonstrates industry's interest in undertaking CCS-related coal projects. DOE should move forward with a new CCPI-4 solicitation. Any future CCPI solicitations must acknowledge current economic realities, including constriction in the capital markets and the difficulty that utilities have in justifying rate recovery for any non-compulsory additional capital or operating cost. DOE should (1) increase emphasis and evaluation weighting on the financial viability of projects; (2) tailor technical requirements so that they do not compromise financial viability; and (3) structure the program so that sufficient time and funding are available to complete front-end engineering designs (FEEDs) and sequestration site characterizations and access evaluations. The latter will allow a utility to provide accurate cost data to its regulators and demonstrate that it has a sequestration resource with sufficient capacity for the life of its plant.

Advanced Turbines.—GE recommends funding of \$45 million in fiscal year 2011 to maintain needed progress in the Advanced Turbines program for the development of enabling technologies for high efficiency hydrogen turbines for advanced gasification systems with carbon capture. The program is on target to enable future advanced coal-fueled IGCC power plants to offset much of the performance penalties associated with carbon capture while also achieving very low NO_x emissions.

In addition, in view of the significant role that natural gas fired generation will play in a low carbon energy future, Congress should support efforts to develop technologies to drive efficiency in new turbines and the Nation's existing gas turbine fleet, as proposed in H.R. 3029 and S. 2900. GE urges the subcommittee to consider an annual investment of \$85 million as envisioned in this legislation. Efficiency improvements from implementing technology on new advanced turbines or retrofitting existing gas turbines will result in reduced emissions and reduced CO₂ for the same power output.

Nuclear Energy: New Plant Activities and Loan Guarantees.—Although there has been significant interest in new plant development, only a fraction of the utilities that applied for Combined Operating Licenses (COLs) in the United States are proceeding with new plant projects on their original timelines. GE Hitachi Nuclear Energy (GEH) commends DOE for the highly successful NP2010 program to license and assist in the development of standardized advanced plant designs, but more needs to be done. In particular, GEH supports the President's call to significantly grow the nuclear loan guarantee program, as it underscores the benefits of nuclear power while addressing the capital-intensive nature of nuclear plant deployment. Congress should provide the requested \$36 billion in loan guarantee authority for nuclear power projects in fiscal year 2011, and should also recognize that providing loan guarantees for other advanced nuclear technologies is critical to ensuring a competitive landscape in the United States. GEH recommends that the new Nuclear Energy Enabling Technologies (NEET) program be expanded to address near term challenges such as domestic nuclear manufacturing capabilities, simulation and training programs to support near term deployment of generation III+ reactor designs, and the application of advanced modularization and construction techniques to help reduce new plant capital costs. The Reactor Concepts RD&D and Fuel Cycle R&D requests are both critical for the deployment of new technologies such as PRISM and Global Laser Enrichment (GLE), and GEH believes that the programs should be provided sufficient funding.

Non-proliferation and Spent Fuel Minimization.—GEH supports used nuclear fuel recycling as a means to fully close the nuclear fuel cycle, minimize nuclear proliferation risks and provide an alternative to a large permanent repository. It is in the best interest of national security that U.S. technology be used to close the fuel cycle in a manner that does not result in separated plutonium. GEH looks forward to working with the Blue Ribbon Commission on America's Nuclear Future and the Congress to discuss ways to address fuel cycle challenges and to support the further development of advanced small modular reactors like GEH's PRISM reactor.

International Nuclear Energy Cooperation.—As interest in civil nuclear power grows around the world, it is critical that the United States lead in efforts to insure that the industry grows in a responsible manner. DOE must have resources to support President Obama's call for a new framework for civil nuclear cooperation. GEH supports the funding request to initiate this new program.

RE-ENERGYSE/Workforce Development.—GEH applauds the recognition that the Government can be a partner in encouraging students to pursue careers in clean energy. GEH is a strong supporter of the industry program for a uniform nuclear curriculum and also has a Nuclear Maintenance Technicians Program with the local community college. These kinds of programs are critical to our continued development of the next generation of nuclear workers.

Electricity Delivery and Energy Reliability: Clean Energy Transmission and Reliability.—GE strongly supports the inclusion of funding for R&D on the dynamic analysis capability of a phasor measurement unit (PMU)-based network in the Transmission Reliability and Renewables Integration subprogram. When coupled with power electronic devices, phasor data can provide grid operators with the capability to rapidly respond to and correct power quality problems. Government investment in PMU-based networks can significantly improve the ability of grid operators to maintain reliability, particularly as operators face the need to integrate increasing amounts of intermittent generation.

GE commends DOE for establishing the new Advanced Modeling Grid Research subprogram. Advanced modeling capabilities will serve as a critical tool in the modernization of the electric grid by assisting grid operators in identifying the technical limits of conventional grid technologies, and facilitating development of new technologies and solutions to respond to a changing energy mix and an increasingly responsive consumer base. In addition, advanced modeling capabilities can enable grid operators and power systems planners to aggregate, analyze, and act upon the vast quantities of data collected by smart grid technologies, thereby unlocking the full potential of the smart grid. DOE should expand industry participation in this program to fully leverage work already underway.

Smart Grid Research and Development.—The smart grid can fundamentally change the way electricity is generated, transmitted, and consumed, thereby delivering substantial improvements in the efficiency and reliability of our Nation's electric grid. Additional research is needed in areas such as the integration of plug-in hybrid electric vehicles and advanced management of distribution voltage. In addition, GE views as essential DOE's continued support for ongoing efforts to establish smart grid standards through the National Institute of Standards and Technology.

GE is concerned that the Power Electronics subprogram emphasizes basic science over technology application. GE recommends that Congress provide support for DOE to conduct research into applications of power electronics to support smart grid technologies.

Energy Storage.—While GE supports further research into energy storage technologies, we are concerned that this program places disproportionate emphasis on lithium-ion battery technology. Industry has conducted a great deal of research and development into a range of advanced battery technologies, including sodium-metal-halide, zinc bromide, and vanadium redox. To foster further innovation in this promising field, GE recommends that the focus of the energy storage program be broadened to encompass a range of battery storage chemistries and technologies. The program should cover all potential storage modalities, including flywheel technology.

Cyber Security for Energy Delivery Systems.—GE recommends that Congress restore funding to the fiscal year 2010 level, and that DOE, to support smart grid deployment, determine the most appropriate next-generation communications and control system technologies, as well as the cyber security requirements for each.

PREPARED STATEMENT OF THE BIOMASS ENERGY RESEARCH ASSOCIATION

SUMMARY

This testimony pertains to fiscal year 2011 appropriations for biomass energy research, development, and demonstration (RD&D) conducted by the Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE), Biomass Program (OBP). This RD&D is funded by the Energy and Water Development bill, under Energy Supply and Conservation, Energy Efficiency and Renewable Energy. BERA recommends a total appropriation of \$360 million in fiscal year 2011 for Biomass and Biorefinery Systems R&D. This is an increase of ~\$140 million over the U.S. Department of Energy request for fiscal year 2011 for this programmatic area. Specific lines items are summarized below (also see Table 1).

- \$30 million for Feedstocks (regional partnerships, high yield feedstocks, simpler/cheaper algae routes).
- \$130 million for Conversion Technologies, distributed as follows:
 - \$50 million for Biochemical Conversion (emphasis on low cost sugars, advanced fuels, traditional plus non-traditional conversion routes, e.g., aqueous processing, chemical catalysis).
 - \$80 million for Thermochemical Conversion (conversion to oils, long chain hydrocarbons, or other fuels/intermediates via pyrolysis, gasification, and non-traditional routes; low cost reactive intermediates such as CO and hydrogen).
- \$100 million for Integrated Biorefineries. (Systems integration, risk reduction through technology demonstrations, sustained support for first-of-a-kind projects).
- \$20 million for Sustainability and Analysis to assess life cycle impacts.
- \$80 million for Biopower for pilot scale RD&D on decentralized applications; studies to assess cost, environmental impacts, and permitting issues; RD&D to address performance and other issues for larger scale boiler repowering.

BACKGROUND

On behalf of BERA's members, we would like to thank you, Mr. Chairman, for the opportunity to present the recommendations of BERA's Board of Directors for the high-priority programs that we strongly urge be continued or started. BERA is a non-profit association based in the Washington, DC area. It was founded in 1982 by researchers and private organizations conducting biomass research. Our objectives are to promote education and research on the economic production of energy and fuels from biomass, and to serve as a source of information on biomass RD&D policies and programs. BERA does not solicit or accept Federal funding.

TABLE 1.—FISCAL YEAR 2011 BIOMASS & BIOREFINERY SYSTEMS R&D, ENERGY SUPPLY & CONSERVATION, DOE/EERE BIOMASS PROGRAM

[In millions of dollars]

Program Area	Description of RD&D	Total
Feedstocks	Regional feedstock partnerships	30.0
	Research to improve energy crops, including super high yields: achieve 10 to 25 dry tons/acre/year via R&D compared with the 2 to 7 dry tons/acre/year possible today.	
	Plants species amenable to thermochemical (e.g., high lignin) and biochemical (e.g., more easily processed lignin) processes.	
	Simpler, less expensive algae production.	
Conversion Technologies: Biochemical.	Conversion to next generation biofuels/processes (broader range of liquid fuels beyond ethanol).	50.0
	Reduction of sugar costs through cheaper enzymes and other routes.	
	Non-traditional technologies such as aqueous phase processing, chemical catalysis.	
Conversion Technologies: Thermochemical.	Next generation biofuels and processes that can use a range of feedstocks (pyrolysis, gasification, other routes).	80.0
	Low cost reactive intermediates such as CO and hydrogen.	
	Synthetic routes to expand beyond Fischer-Tropsch fuels.	
Integrated Biorefineries	Risk reduction through demonstrations of biochemical and thermochemical conversion technologies in biorefineries, sustained support for first-of-a-kind projects, and underwriting of loan guarantees.	100.0
Analysis and Sustainability	Life cycle analysis of new technology pathways	20.0
	Land use issues.	
Large Scale Biopower	RD&D at pilot scale for decentralized biopower applications	80.0
	Studies to analyze cost, permitting, and environmental issues.	
TOTAL .....	.....	360.0

There is a growing urgency to diversify our energy supply, develop technologies to utilize indigenous and renewable resources, reduce U.S. reliance on imported oil, and mitigate the impacts of energy on climate and the environment. The benefits are many—economic growth, new American jobs, enhanced environmental quality, and fewer contributions to climate change. Economic growth is fueled and sustained in large part by the availability of reliable, cost-effective energy supplies. A diversified, sustainable energy supply is critical to meeting our energy challenges and

maintaining a healthy economy with a competitive edge in global markets. Biomass can diversify U.S. energy supply in several ways:

- Biomass is the single renewable resource with the ability to directly replace liquid transportation fuels.
- Biomass can be used as a feedstock to supplement the production of chemicals, plastics, and materials now produced from crude oil.
- Gasification of biomass produces a syngas that can be utilized to supplement the natural gas supply, generate electricity, or produce fuels and chemicals.
- Biomass can be used directly or in combination with coal to diversify our electricity supply.

While biomass will not solve all our energy challenges, it can certainly contribute to the diversity of our supply, and do so in a sustainable way, while minimizing impacts to the environment or climate. Goals could be to reach at least the 10 percent to 15 percent levels in both the electricity generation and motor vehicle transportation sectors by the 2020 to 2030 decade, up from on the 1 percent to 25 percent levels today in these two sectors. Unlike solar and perhaps wind, biomass will be constrained to far below 100 percent, due to land use and water availability concerns. However, biomass can be developed from a minor role to a major role in a diversified, domestic and renewable energy supply for the United States, based on an expansion of our Nation's agriculture and forest products industries. The Energy Independence and Security Act (EISA) of 2007 mandates increased use of alternative fuels, with a substantial portion to come from cellulosic biomass. A Federal Renewable Portfolio Standard (RPS) is now under consideration (many States have already passed such legislation) which would increase the use of renewables for electricity, including biopower. To meet the EISA goals and potentially a Federal RPS will require aggressive support for RD&D to move technology forward and reduce technical and economic risk.

OVERALL BERA RECOMMENDATIONS FOR US DOE/EERE BIOMASS RD&D

- Pursue a Balanced Approach to Biomass R&D [All R&D Areas].*—It is important for DOE to pursue a balanced approach to biomass R&D. This means striking a balance between the involvement of national labs, academia, and industry to take advantage of their distinctive strengths, rather than relying heavily on national laboratories, as in the past. The DOE should also pursue a balance between understanding fundamentals, advancing the technology, applying the technology, and integrating the technology. There has been a particular neglect of understanding fundamentals to provide a technology platform that would catalyze development of better technologies and enhance commercial success. Technology breakthroughs are needed because the scale (large) and the costs (too high) are barriers for the technology development pathways needed to meet today's energy and climate challenges. Mechanisms are needed to ensure that fundamental research and new processes and science get into the hands of the companies most likely to deploy the breakthroughs.
- Make Investments to Bring Down the Cost of Sugars From Biomass [Biochemical and Thermochemical Conversion R&D].*—One key to competitiveness is reducing the cost of producing reactive intermediates from biomass. For biological systems, this means getting low cost sugars, as expensive sugars result in expensive products whether the product is ethanol or an advanced, infrastructure-compatible (drop-in) fuel. Making a drop-in fuel from expensive sugars is a pathway for failure. Similarly, for thermochemical approaches, the key is getting low cost reactive intermediates such as CO and hydrogen. The balance advocated in Item 1 can help reduce the cost of making such intermediates. Include advanced biological routes that better integrate simplified combined biological methods with pretreatment to reduce enzyme costs dramatically, as enzymes followed by pretreatment are the major cost items that are susceptible to change.
- Provide Support for Both Traditional and Non-traditional Conversion Routes [Conversion Technologies].*—We recommend that while both biological and thermochemical processes be funded, greater emphasis should be given to thermochemical conversion for transportation fuels and substitutes for other petroleum-derived products to mitigate our dependency on imported oil. Thermochemical technology has been historically under-funded despite its potential to produce more infrastructure-compatible fuels. Biofuels R&D should be expanded beyond just ethanol and Fischer-Tropsch products. We advocate funding for chemical catalysis (rather than just fermentation) to broaden the spectrum for products from sugars; new catalysts and synthetic routes are needed. In addition to the traditional focus of biological and thermochemical routes, it

is important to support new emerging technologies such as aqueous phase processing of biomass to diesel and jet fuel substitutes.

- Reduce the Risk of New Fuel Production Technology Via Demonstrations, Loan Guarantees, and Sustained Support for First-of-a-kind Projects [Integrated Bio-refineries].*—It is important that DOE and the Congress understand the substantial challenges of introducing new fuel production technology, particularly in a market with large swings in prices. A fortune can be made when oil prices are high—and twice as many fortunes lost when they drop. A key approach is for DOE to “buy down” risk in a meaningful way to compensate for the huge fluctuations, and enable a few first-of-a-kind projects to succeed. DOE must also provide sustained support and avoid dropping projects prematurely. Technology demonstrations reduce technical and economic risk and accelerate the potential for private investment. A high level of guarantee is vital—as introducing any new fuel in today’s petroleum-heavy market is extremely challenging. The capital costs for petroleum processing are paid off, making it a cash producer, while a biofuels facility must cover not only cash costs but make a high return on capital to compensate for first time risk. This is a heavy lift for first-of-a-kind technology.
- Pursue Simpler and Less Expensive Systems for Utilizing Algae [Feedstocks].*—Much simpler and less expensive systems are needed, especially to harvest algae. This technology advancement should be pursued before other any new large scale projects are initiated.
- Increase Support for High Yield Feedstocks.*—The cost efficient production and handling of energy crops—which is necessary for any significant impact on our national needs—continues to be a major cost and issue. However, it historically has been given a disproportionately small portion of funding.
- Conduct RD&D to Enable Greater Use of Decentralized Biopower.*—A substantial increase over the requested \$50 million should be made to support hands-on, applied RD&D to accelerate use of biopower. The bulk of these funds should go to RD&D rather than paper studies. Research activities of at least a pilot scale are a priority. While expensive, these are where the real path to commercialization happens. Biopower RD&D activities should emphasize decentralized generation (5–50 MW), which plays to biomass’s strengths (flexibility in delivery, broad applicability, localized/sustainable power) and environmental benefits (less transmission lines, less fuel hauling, less intrusiveness, more efficient/CHP). Biomass can also be pursued for centralized generation (large power) as a strategy for reducing greenhouse gases, and may be more attractive than other renewables as it is readily available and can be combusted much like coal. Large power uses may have a role for building biomass fuel supply infrastructure via fuel supplies developed locally with low capital cost because the coal plant is already built. RD&D could potentially focus on performance issues related to re-powering boilers with biomass.
- Conduct Studies Needed to Assess Cost, Permitting, and Environmental Issues Related to Biopower.*—Studies are needed to inform industry, Congress, and the general public, but should not be the primary focus of biopower efforts. The cost and time for permitting of plants is already a significant factor in biomass industrial use and is growing. Permitting processes should be reviewed with a goal of facilitating industry growth by making permitting as simple, quick, and reasonable as possible. Regulators and companies need to be confident that they can obtain permits for biomass power or fuel plants. A scoping study of potential technologies meeting near-term scale-up potential or useable in retrofitting existing facilities could be useful, if it facilitates permitting or building of plants or retrofits. Detailed cost estimates for potential power generation and biomass conversion facilities could stimulate serious consideration from the business community raise awareness of successful DOE projects. Assessment of potential GHG emission reductions is needed to clarify the impacts on fossil energy and fossil CO₂ that result from biomass crops, harvesting, energy from forests, etc., and moving to power plants. The goal is a fair net CO₂ and net energy reduction value compared to fossil alternatives.
- Leverage Results From Existing/Ongoing Work on Biomass to Support Biopower Efforts.*—Cost-benefit analysis on feedstock type and delivery systems, for example, is not entirely unique to power and similar studies conducted for biomass feedstocks and biofuels can be leveraged to understand the biopower landscape.

PREPARED STATEMENT OF THE UNIVERSITY OF TEXAS AT AUSTIN
CONTINUE FUNDING FOR U.S. DEPARTMENT OF ENERGY (DOE) OIL AND GAS RESEARCH
PROGRAMS, INCLUDING RPSEA (EPACT SECTION 999)

I appreciate your leadership efforts and support for oil and natural gas research. I urge you to continue to support and grow important fossil energy research and development (R&D) in the fiscal year 2011 Energy and Water Appropriations bill.

The President's fiscal year 2011 budget request to Congress recommends repeal of section 999 of the Energy Policy Act of 2005 (EPACT), which funds RPSEA, the industry-led research consortium. The President's budget also recommends elimination of the (already paltry) DOE Office of Fossil Energy budget for oil and gas R&D.

Although I can, perhaps, understand the political underpinnings of these administrative recommendations, I find the recommendations to be short-sighted and hard to reconcile with the stated and real needs of our Nation. These needs include, but are not limited to: (1) access to vital energy as we try to recover from a recession and the largest increase in deficit spending ever; (2) energy to get the U.S. economy back on its feet; (3) access to increased domestic energy for national security; (4) keeping and adding (non-government) American jobs, such as those the domestic energy industry provides; and (5) science and technology innovation in fossil energy in U.S. universities.

I have been engaged in energy production and research for nearly three decades. In the past 2 years, I have visited many of the premier energy locations and facilities:

- Hydro in Norway
- Wind in Denmark and West Texas
- Geothermal in Iceland
- Solar in Spain and California
- Biofuel in the United States
- Carbon sequestration in the United States
- Liquefied natural gas (LNG) in Qatar and shale gas in the United States
- Oil in the Middle East and the United States
- Nuclear in France and the United States

During these visits I have met one-on-one with industry, government, and academic leaders, including:

- CEO of BP, London
- CEO of Statoil, Norway
- CEO of Chesapeake, Oklahoma
- CEO of BP Capital, Dallas
- CEO of RasGas, Qatar
- CEO of Kuwait Energy
- CEO of Abengoa Solar, Spain
- CEO of Renewable Energy Corporation, California
- Deputy CEOs of Kuwait Oil and Bahrain Petroleum
- President of Denbury, Texas
- Vice President of Shell Offshore, Louisiana
- Director of MIT Energy Initiative and former U.S. Under Secretary of Energy
- Director of U Texas Energy Institute and former U.S. Under Secretary of Energy
- Director of Energy Institute at Stanford
- President of Iceland
- U.S. Under Secretary of Energy
- Minister of Oil, Bahrain
- Director of the OECD Nuclear Energy Agency, Paris
- Deputy Director of the IEA, Paris
- Leading scientists and engineers across several energy sectors

Perhaps most important from these visits, I have learned that there are no silver bullets in energy. We cannot turn off coal and switch on solar. We cannot turn off natural gas and turn on wind. To imply otherwise is disingenuous. Innovation in renewable energy is exciting and as the decades unfold these sources of energy will improve, address the intermittency, storage, cost, energy density, storage and transmission challenges, and become more prevalent! Meanwhile, nations have and will continue to use "the energy they have, where they have it," and thus the transition to a non-fossil-fuel future will take many decades and will be unevenly distributed among developed, developing, and undeveloped nations. It is not a matter of political will but rather a matter of economics, scale, infrastructure, access, thermodynamics, and kinetics.

Many large and developing nations continue to ramp up their acquisition and use of fossil fuels. This is a reality. Philosophical hope notwithstanding, the United States is getting its tail whipped as the National Oil Companies (e.g., PetroChina, Petrobras, Petronas, Total, Statoil, ARAMCO, and others) build on their own national resource base and strong government support to become major international players. At the same time, the few surviving International Oil Companies (ExxonMobil, Shell, BP, Chevron, and ConocoPhillips) struggle to compete, as evidenced by layoffs in the past year and continued mergers and acquisitions. Combined, the public companies of the world control less than 10 percent of world oil reserves. Read and digest that line again, and then think about U.S. security and the health of the economy as we attempt to transition into the future.

Energy research is vital to stay competitive and meet the energy needs of our Nation. That includes research in fossil energy, which together supply ~85 percent of our energy demand. Research is needed in areas such as unconventional oil, unconventional gas, carbon sequestration, extreme environment (Arctic, deep water, subsalt, subvolcanic, etc.) conventional oil and gas, and nanotechnology applications in oil and gas, to name just a few.

Policy makers need to get past the notion that research support of fossil energy should only be supported privately. That notion is politically motivated, and to continue to promulgate it is hurting our Nation. Federal-private partnerships are everywhere and just as important in fossil energy as they are in renewable energy, biotech, pharmaceuticals, agriculture, or high tech. U.S. universities are woefully under funded with regard to Federal support for fossil energy. We are naively and idealistically giving away the U.S. science and engineering advantage in fossil energy research. To what end?

I strongly support increasing DOE oil and gas research funding. This includes the RPSEA program, which has been instrumental in providing Federal support of crucial research in unconventional onshore natural gas and ultra-deepwater oil and gas, both of which are critical to U.S. energy security (affordable, available, reliable, and clean). RPSEA provides competitive grant monies to universities, which in turn leverage those monies significantly by partnering with industry. DOE fossil energy used to have a similar program—when they had a budget. I cannot say it emphatically enough: A real budget needs to be reinstated! Students and faculty benefit directly from research funding and from the insight they each can gain from working on these research projects. Unfortunately, this kind of research is not supported by NSF or other blue-sky programs.

Both DOE fossil programs and RPSEA provide tremendous value to our country, creating and supporting jobs and increasing technology development for small and independent companies. Independent companies are the drivers behind the dramatic increase in natural gas reserves that the United States is enjoying today. Although they lack research facilities and staff, they are voracious fast-adapters of useful technology. Thus, the Federal investments we make in research funding are paid back many times over.

A few final thoughts as you consider this important decision:

- Developing nations (China, India) are aggressively pursuing and acquiring energy and other resources around the globe. Ignoring our huge domestic fossil energy resource base is tantamount to capitulation on an international scale.
- The United States should be conducting resource assessments of all of its continental shelf areas, and we should encourage energy companies to pursue these resources. Companies are willing to make the huge capital outlays required to explore and develop resources safely and cleanly, if they are allowed to do so. The consumer and the Nation will reap the benefits, and the environmental track record in the offshore is impressive and well established.
- Hydraulic fracturing has been the key to the resurgence of gas production and reserves in the United States in recent years. This technology is not new—it has been in use for over 50 years in hundreds of thousands of wells—but it has recently been refined for maximum impact in unconventional gas systems, particularly in horizontal wellbores. Hydraulic fracturing has a safe and environmentally clean track record. Claims to the contrary are unsubstantiated or fabricated and should be challenged at every opportunity.

I understand Congress' budget constraints, but it is essential to maintain a robust fossil energy R&D program aimed at maximizing our domestic fossil-energy resources. Natural gas development should be at or near the top of the list of the Nation's priorities. New and promising areas of natural gas development, such as the Barnett, Bakken, Marcellus, Haynesville, and Fayetteville shale, have been made possible through advances in technology, many of which were funded through DOE's research efforts and are now augmented by Roseau's efforts.

Your support of fossil energy oil and natural gas R&D programs, as evidenced by continuing funding for RPSEA (EPACT section 999), provides the resources to power America's economic recovery, the new workforce to do it, and a solid energy foundation for the future.

PREPARED STATEMENT OF THE UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH (UCAR)

On behalf of the University Corporation for Atmospheric Research (UCAR) and the larger university community involved in Earth sciences research and education, I submit this written testimony for the record of the Senate Committee on Appropriations, Subcommittee on Energy and Water Development, and Related Agencies. DOE's programs and initiatives in science and education directly support university and laboratory communities. They are also key to building a broad-based national resiliency to handle the great challenges of the future, including climate change. DOE is on the frontlines building the capacity needed to address these challenges, maintain a competitive advantage for the United States internationally, and secure an economically and environmentally sustainable future.

For these reasons, I urge the subcommittee to fund the President's full fiscal year 2011 budget request for the DOE Office of Science at \$5.121 billion and the Office of Energy Efficiency and Renewable Energy (EERE) at \$2.355 billion. Furthermore, it is critical that the subcommittee take every step to ensure that the DOE's Science budget stays on track to double this decade, as authorized by the America COMPETES Act of 2007.

UCAR is a consortium of 75 universities that manages and operates the National Center for Atmospheric Research (NCAR) on behalf of the National Science Foundation and the university community. UCAR and NCAR serve as national hubs for research and education for the atmospheric and Earth system sciences community. UCAR also houses community programs that bring geosciences communities together to address large-scale, integrated research and education challenges. Our mission is to better understand the behavior of the atmosphere and related global systems and to help communities, States, and nations use this information to sustain and improve life on Earth.

I applaud the DOE's ongoing leadership in the management of programs to develop clean, alternative sources of energy, enhance national security and independence from foreign oil, address climate change, and educate the workforce for the emerging global clean energy economy. With the following, I specifically want to highlight several science research and education programs that represent the DOE's critical investments toward a more resilient and adaptable society.

CLIMATE AND EARTH SYSTEM RESEARCH

The Office of Biological and Environmental Research (BER) within the DOE Office of Science makes fundamental contributions to the Nation's premier climate and Earth system models. Such models provide the scientific foundation for national and international decisionmaking on climate change—how we should respond to climate change, whether we should adapt or mitigate, etc.

In particular, BER provides indispensable support to the Community Climate System Model (CCSM), which is being released this year in its fourth major iteration for use in the U.N. Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report, expected for release in 2014. A comprehensive and sophisticated model for analyzing Earth's past, present, and future, CCSM contributed the most simulated data of any global model to the IPCC's 2007 Fourth Assessment Report. It is providing decisionmakers around the world with a clearer picture of what the impact of sustained climate change will be on a global scale.

CCSM is also laying the scientific foundation for higher-resolution, downscaled models which will provide regional and local predictions about the impacts of climate change. This regional, downscaled approach is BER's stated focus for climate and Earth system modeling research in fiscal year 2011. Regional and local predictions will help States, communities, businesses, and individuals develop effective long-term strategies to minimize damages of climate change impacts, by either adapting or mitigating.

Thanks in part to BER support, the Nation's climate models are becoming more realistic, incorporating more precise and complex natural and now human processes that are shaping the global climate. While uncertainties will always persist, these new capabilities will allow the climate science community to address the new class of societally relevant questions in a way that has never been done in the past. CCSM 4, for example, will for the first time feature fully interactive carbon and sul-

fur cycles, as well as dynamic vegetation, aerosol effects on clouds, carbon chemistry, natural carbon sequestration via land surface and oceans, and interactions between the carbon cycle and climate.

Frontiers for climate modeling in fiscal year 2011 include understanding more fully how aerosols affect cloud formation, and in turn radiative forcing, and how modes of natural climate variability (e.g., the El Niño Southern Oscillation, Pacific Decadal Oscillation, and Northern Annular Mode) will change as atmospheric greenhouse gas concentrations continue to increase. Feedback cycles such as high latitude ocean-ice interaction and methane release from Arctic permafrost are also areas of study where scientists still have much to learn and models still need improvement.

Understanding and responding to climate change extends far beyond the capabilities of any one laboratory or agency. This is a broad, interagency effort, in which DOE is a key partner. New contributions to the design and scientific content of CCSM will not come from NCAR alone. While CCSM is housed and managed at NCAR, it is an open source climate model, which means that scientists across the Nation and the world make contributions and improvements.

In order to develop more accurate, increasingly realistic, and higher resolution climate models, with better predictive capabilities for individuals, businesses, and communities, I urge you to fund the Office of Biological and Environmental Research (BER) within the DOE Office of Science at the President's full fiscal year 2011 budget request of \$627.0 million. BER support is critical to the university community's most important and recognized climate modeling work.

ADVANCED SCIENTIFIC COMPUTING RESEARCH

Also within the DOE's Office of Science, Advanced Scientific Computing Research (ASCR) delivers leading edge computational and networking capabilities to scientists nationwide, enabling advances in computer science and the development of specialized software tools necessary to research the major scientific questions being addressed by the Office of Science and the larger university community.

ASCR's continued progress is of particular importance to atmospheric scientists involved with climate model development, because an enormous amount of computing power is required to address the interaction of the Earth's systems and global climate change. The complex nature of the climate processes being simulated in climate models requires very advanced software engineering to compute efficiently at the petascale. For this reason, ASCR played a critical role in developing the computing and networking resources for the U.S. contributions to the IPCC Fourth Assessment Report, and ASCR is one of the most important resources supporting the next generation of state-of-the-science climate simulation tools for this country.

Because the complex and high-resolution climate scenarios produced using the CCSM are too processor intensive to be run at NCAR alone, they are outsourced to the DOE's Leadership Computing Facilities, located at Oak Ridge National Laboratory (OLCF), where a 2.33 petaflop system is openly available to the scientific community, and also at Lawrence Berkeley National Laboratory/NERSC, Argonne National Laboratory, and Lawrence Livermore National Laboratory. Last year, scientists at NCAR and the University of Wisconsin used Oak Ridge's OLCF to simulate abrupt climate change and shed new light on an enigmatic period of natural global warming in Earth's relatively recent history. The work was featured in the July 17, 2009 issue of the journal *Science* and provides valuable new data about the causes and effects of global climate change. The scientists used nearly a million processor hours in 2008 to run one-third of their simulation. With 4 million processor hours allocated for 2009–2011, they will complete the simulation, capturing climate from 14,000 years ago to the present and projecting it 200 years into the future.

The results of this research and other research like this are brought to the broader scientific communities through another ASCR program, the Scientific Discovery through Advanced Computing (SciDAC) program. SciDAC facilitates the transfer of basic research efforts into computational science applications through direct partnerships between ASCR-supported applied mathematicians and computer scientists. In the case of climate change, there is a growing demand for the development of tools that will help inform decisionmakers about the options for addressing and adapting to climate change. With computation and simulation, scientists can model what is known about the Earth's systems, identify uncertainties of the models, and determine the observational data and experiments needed to further refine and improve the models.

I urge you to fund the Advanced Scientific Computing Research (ASCR) within the DOE Office of Science at the President's full fiscal year 2011 budget request of \$426.0 million. ASCR provides critical processor capacity and computational tools

like SciDAC that are essential to predictive climate change research at high resolutions and over large time scales.

WORKFORCE DEVELOPMENT FOR TEACHERS AND SCIENTISTS

The DOE Office of Science's education programs, like the Workforce Development for Teachers and Scientists (WDTS) Program, are also essential to strengthening our Nation's resilience to modern challenges like climate change. DOE is taking a leadership role in educating and training the Nation's science, technology, engineering, and mathematics (STEM) workforce and facilitating the development of the knowledge and expertise that will prepare us to address energy and environmental challenges.

WDTS aims to recruit and train a pipeline of highly skilled and diverse STEM workers to meet our Nation's innovation and competitiveness challenges. To this end, WDTS sponsors workforce training and education programs, often based at DOE's national laboratories, that motivate students and educators to pursue careers that will contribute to both basic and applied science.

WDTS has also launched the DOE Office of Science Graduate Fellowship Program to support U.S. graduate students pursuing degrees in areas of basic science and engineering, for up to 3 years of study. The goal of the Fellowship is to encourage talented students to pursue research-focused graduate studies in physics, chemistry, biology, mathematics, computer science, engineering, and environmental science.

Programs like WDTS have produced tens of thousands of leading scientists, engineers, and technicians who have dedicated their careers to working on the great challenges of the day, including climate change, while pursuing answers to many of the most important scientific questions in physics, chemistry, biology, environmental and atmospheric science, and other areas of basic science. Their work will be critical to our Nation's success in the 21st century.

I urge you to fund the Workforce Development for Teachers and Scientists (WDTS) program within the DOE Office of Science at the President's full fiscal year 2011 budget request of \$35.6 million. We must ensure that the next generation workforce is better prepared to address growing energy and environmental challenges.

RENEWABLE ENERGY R&D

Federal investment in the scientific research and technology development involved with renewable energy is one of the most important investments we can make in our Nation's future and our ability to build resilience to economic and environmental challenges. Renewable energy conveys numerous cross-cutting benefits to society, including reducing our dependence on foreign oil, transforming the clean energy economy, decentralizing the energy market, providing new high-tech jobs, reducing the human toll on the environment, and mitigating global climate change.

Our national research universities, along with DOE laboratories and an emerging private sector, are driving the country's growth in renewable energy and increasing the efficiency of new technologies. One example of such collaboration includes an NCAR partnership with DOE's National Renewable Energy Laboratory (NREL) and the regional utility company, Xcel Energy, to develop sophisticated wind forecasts for operational use. These provide critical information to select the most productive locations for new wind turbine farms, better integrate wind-generated electricity into the power grid, and make critical decisions about powering down traditional coal- and natural gas-fired plants when sufficient winds are predicted.

Given the critical importance to the Nation of developing economically and environmentally sustainable technologies for producing energy, I recommend that the subcommittee fully fund the President's fiscal year 2011 budget request for the Office of Energy Efficiency and Renewable Energy at \$2.355 billion.

RE-ENERGYSE (REGAINING OUR ENERGY SCIENCE AND ENGINEERING EDGE)

Within the Office of Energy Efficiency and Renewable Energy (EERE), RE-ENERGYSE is a broad educational effort designed to inspire students and workers to study and pursue careers in science, engineering, and entrepreneurship related to clean energy. Today at U.S. universities, opportunities to pursue clean energy education are far and few in between. RE-ENERGYSE will help universities and community colleges develop cutting edge programs, with redesigned and new curricula to produce tens of thousands of highly skilled U.S. workers who can sustain American excellence in clean energy in industry, trades, academia, the Federal Government, and national laboratories.

RE-ENERGYSE will also benefit from plans to partner with the National Science Foundation for program evaluation. This partnership will build on the scientific and

engineering expertise of both agencies in the energy field and benefit from NSF's successful track record of integrating research with education in programs it has developed and administered over the past two decades.

I urge the subcommittee to fund RE-ENERGYSE at the President's fiscal year 2011 request of \$50.0 million.

I want to thank the members of the subcommittee for their continued leadership in supporting basic and cutting-edge scientific research and in promoting education and workforce development in the environmental and other Earth sciences.

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